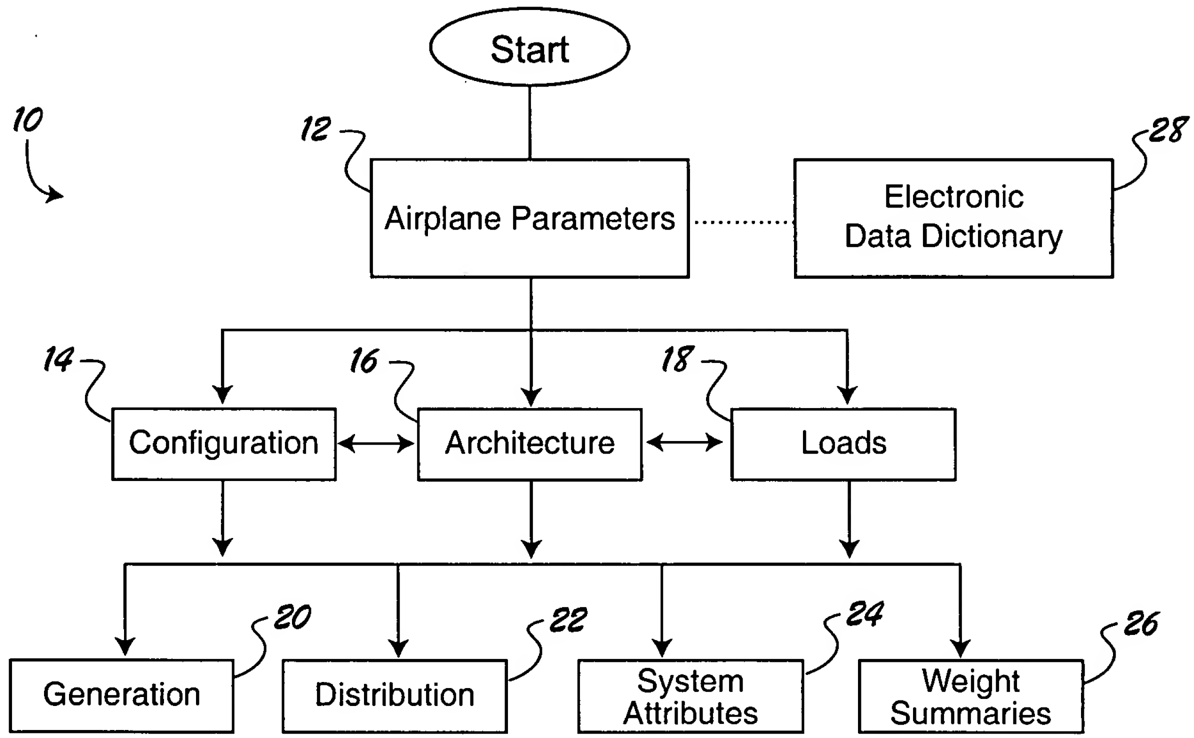

10
Start
12
Airplane Parameters
28
Electronic
Data Dictionary
14
Configuration
16
Architecture
18
Loads
20
Generation
22
Distribution
24
System
Attributes
26
Weight
Summaries

FIG. 1

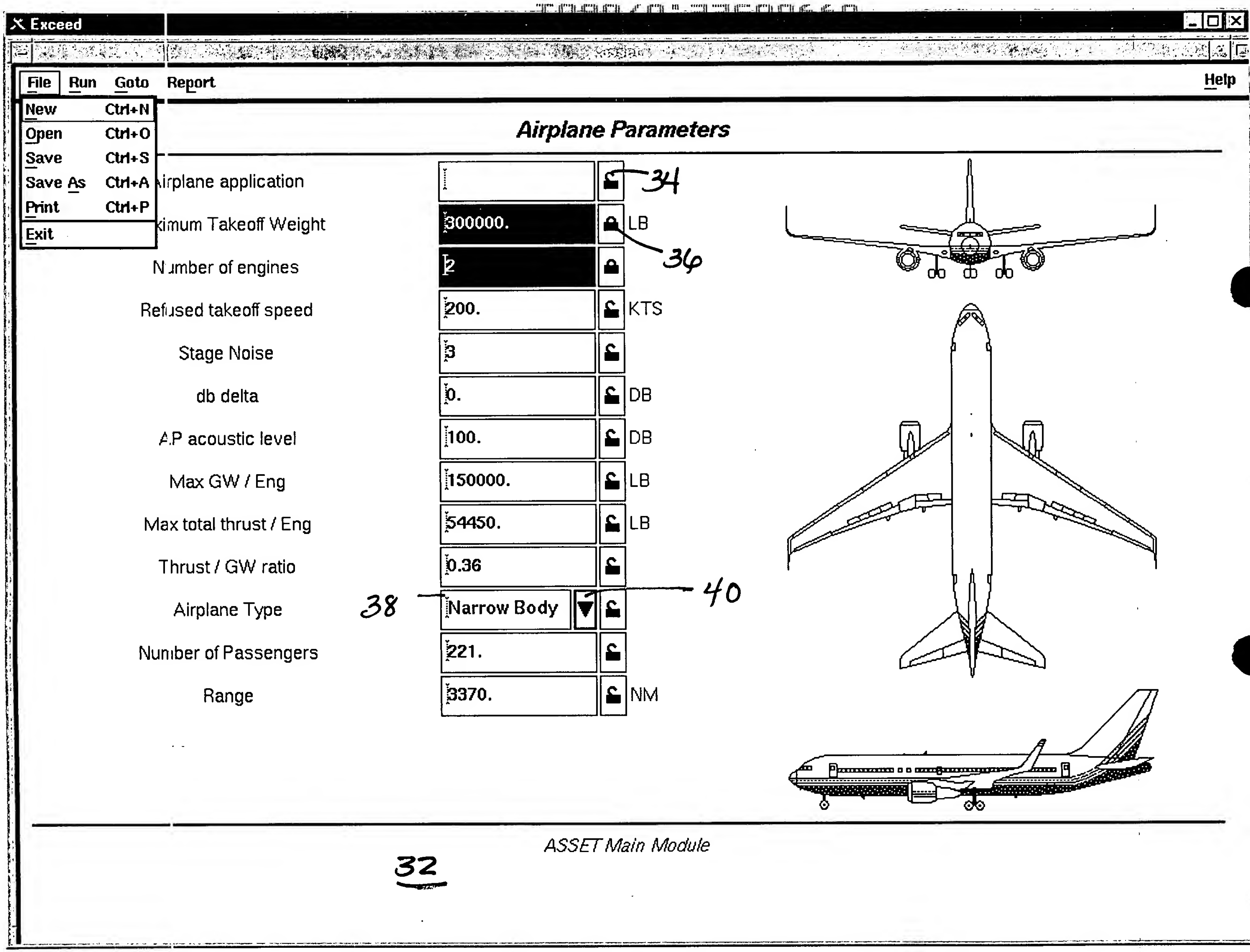

Exceed
File
Run
Goto
Report
Help
New Ctrl+N
Open Ctrl+O
Save Ctrl+S
Save As Ctrl+A
Print Ctrl+P
Exit
Airplane Parameters
irplane application
ximum Takeoff Weight
300000.
LB
Number of engines
2
Refused takeoff speed
200.
KTS
Stage Noise
3
db delta
0.
DB
AP acoustic level
100.
DB
Max GW / Eng
150000.
LB
Max total thrust / Eng
54450.
LB
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
NM
ASSET Main Module
34
36
38
40
32

FIGURE 2

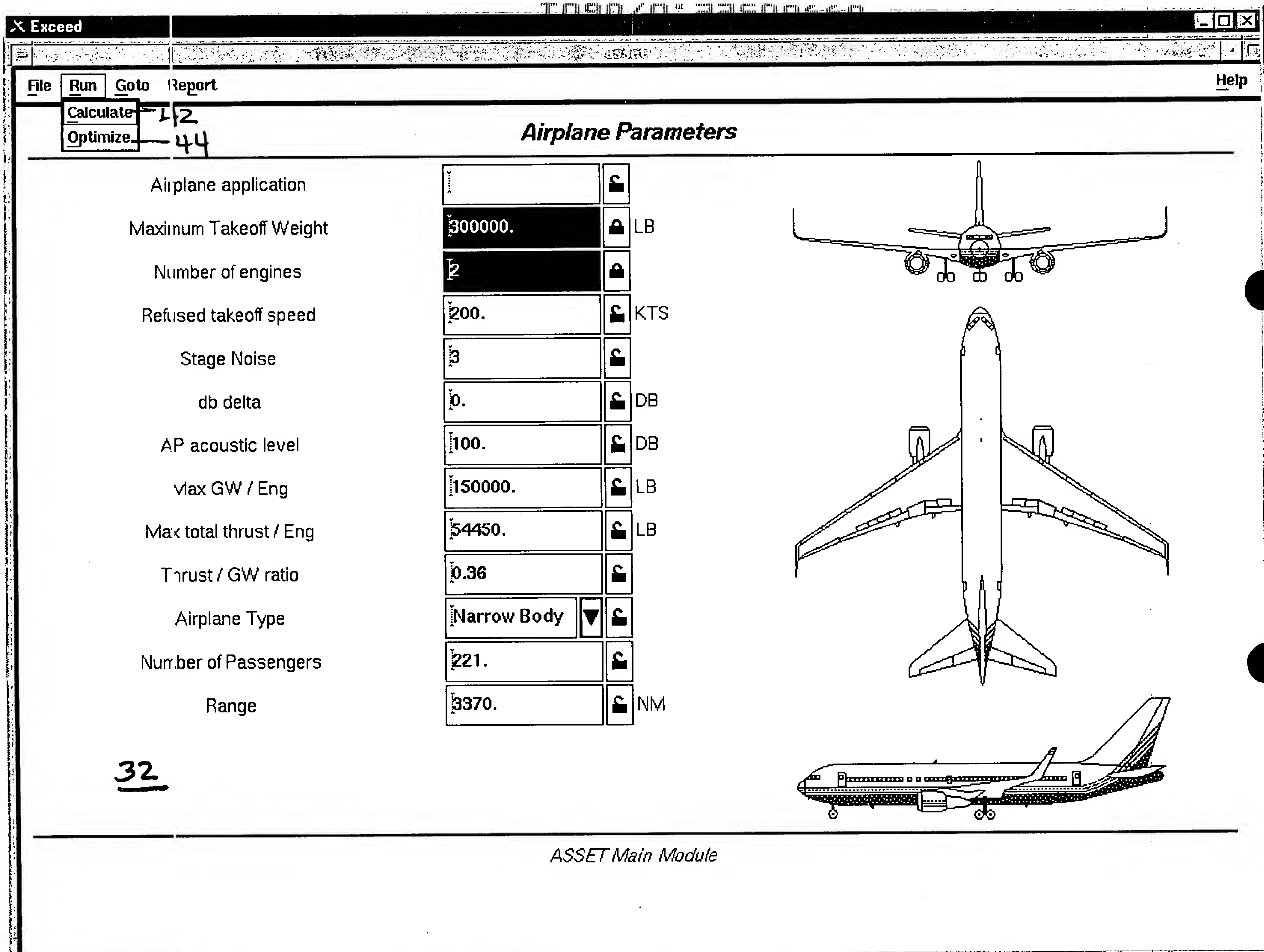

Exceed
File
Run
Goto
Report
Help
Calculate
Optimize
42
44
Airplane Parameters
Airplane application
Maximum Takeoff Weight
300000.
LB
Number of engines
2
Refused takeoff speed
200.
KTS
Stage Noise
3
db delta
0.
DB
AP acoustic level
100.
DB
Max GW / Eng
150000.
LB
Max total thrust / Eng
54450.
LB
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
NM
32
ASSET Main Module

FIGURE 3

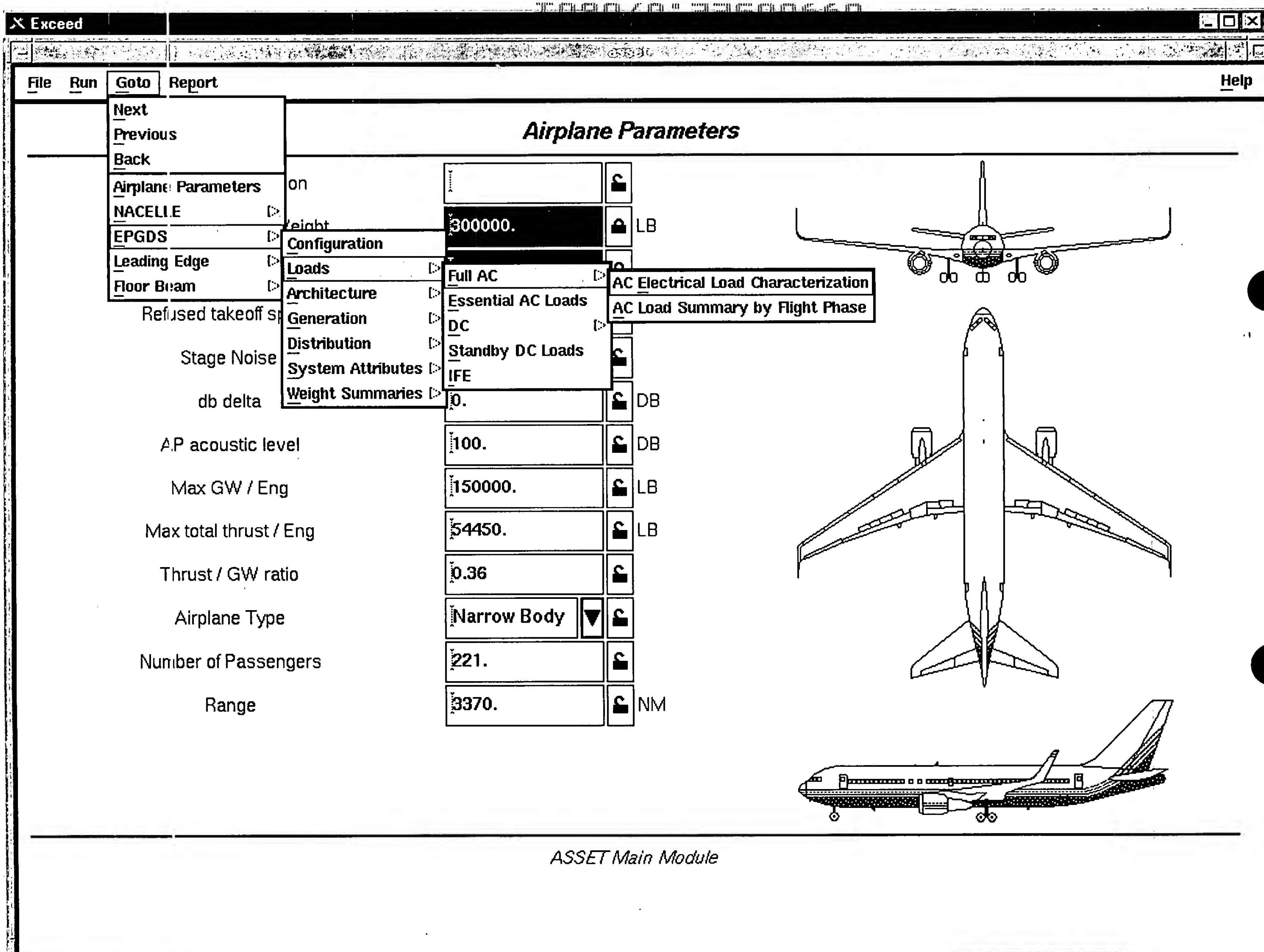

Exceed
File
Run
Goto
Report
Help
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Full AC
Essential AC Loads
DC
Standby DC Loads
IFE
AC Electrical Load Characterization
AC Load Summary by Flight Phase
Airplane Parameters
300000.
LB
Stage Noise
db delta
0.
DB
AP acoustic level
100.
DB
Max GW / Eng
150000.
LB
Max total thrust / Eng
54450.
LB
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
NM
ASSET Main Module

FIGURE 4

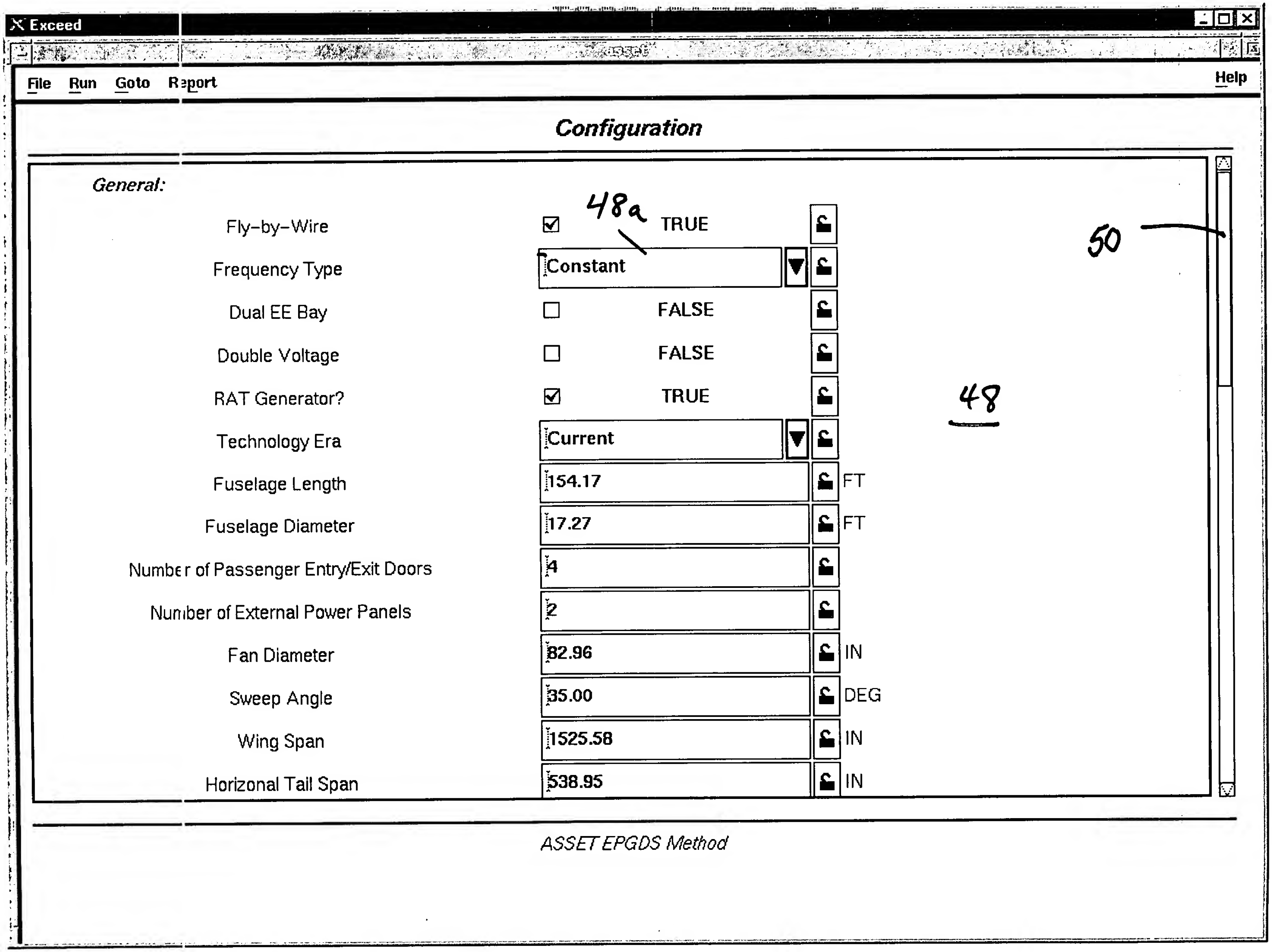

Exceed
File
Run
Goto
Report
Help
Configuration
General:
Fly-by-Wire
TRUE
48a
Frequency Type
Constant
Dual EE Bay
FALSE
Double Voltage
FALSE
RAT Generator?
TRUE
Technology Era
Current
Fuselage Length
154.17
FT
Fuselage Diameter
17.27
FT
Number of Passenger Entry/Exit Doors
4
Number of External Power Panels
2
Fan Diameter
82.96
IN
Sweep Angle
35.00
DEG
Wing Span
1525.58
IN
Horizonal Tail Span
538.95
IN
50
48
ASSET EPGDS Method

FIGURE 5A

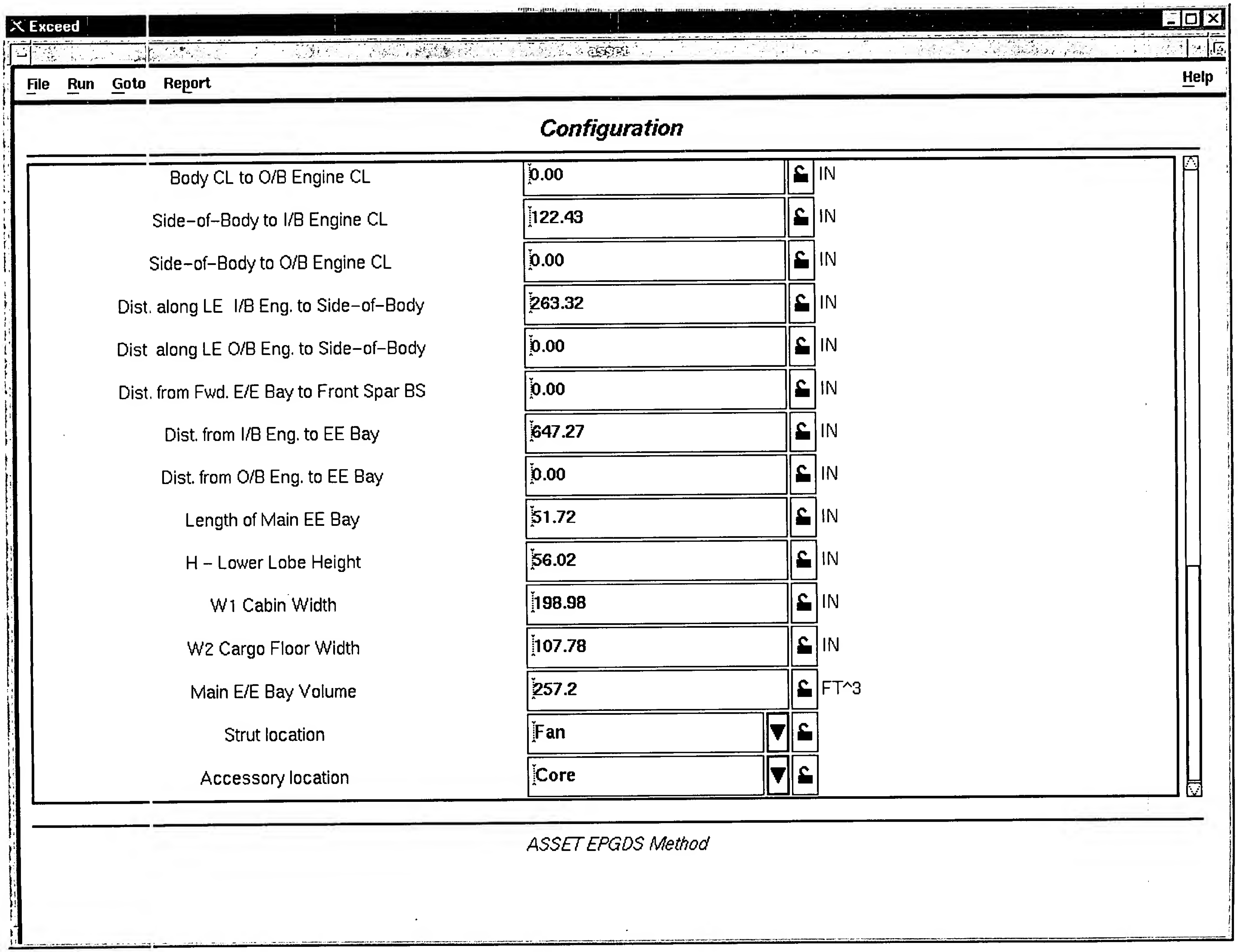

Exceed
File
Run
Goto
Report
Help
Configuration
Body CL to O/B Engine CL
0.00
IN
Side-of-Body to I/B Engine CL
122.43
IN
Side-of-Body to O/B Engine CL
0.00
IN
Dist. along LE I/B Eng. to Side-of-Body
263.32
IN
Dist along LE O/B Eng. to Side-of-Body
0.00
IN
Dist. from Fwd. E/E Bay to Front Spar BS
0.00
IN
Dist. from I/B Eng. to EE Bay
647.27
IN
Dist. from O/B Eng. to EE Bay
0.00
IN
Length of Main EE Bay
51.72
IN
H – Lower Lobe Height
56.02
IN
W1 Cabin Width
198.98
IN
W2 Cargo Floor Width
107.78
IN
Main E/E Bay Volume
257.2
FT^3
Strut location
Fan
Accessory location
Core
ASSET EPGDS Method

FIGURE 5B

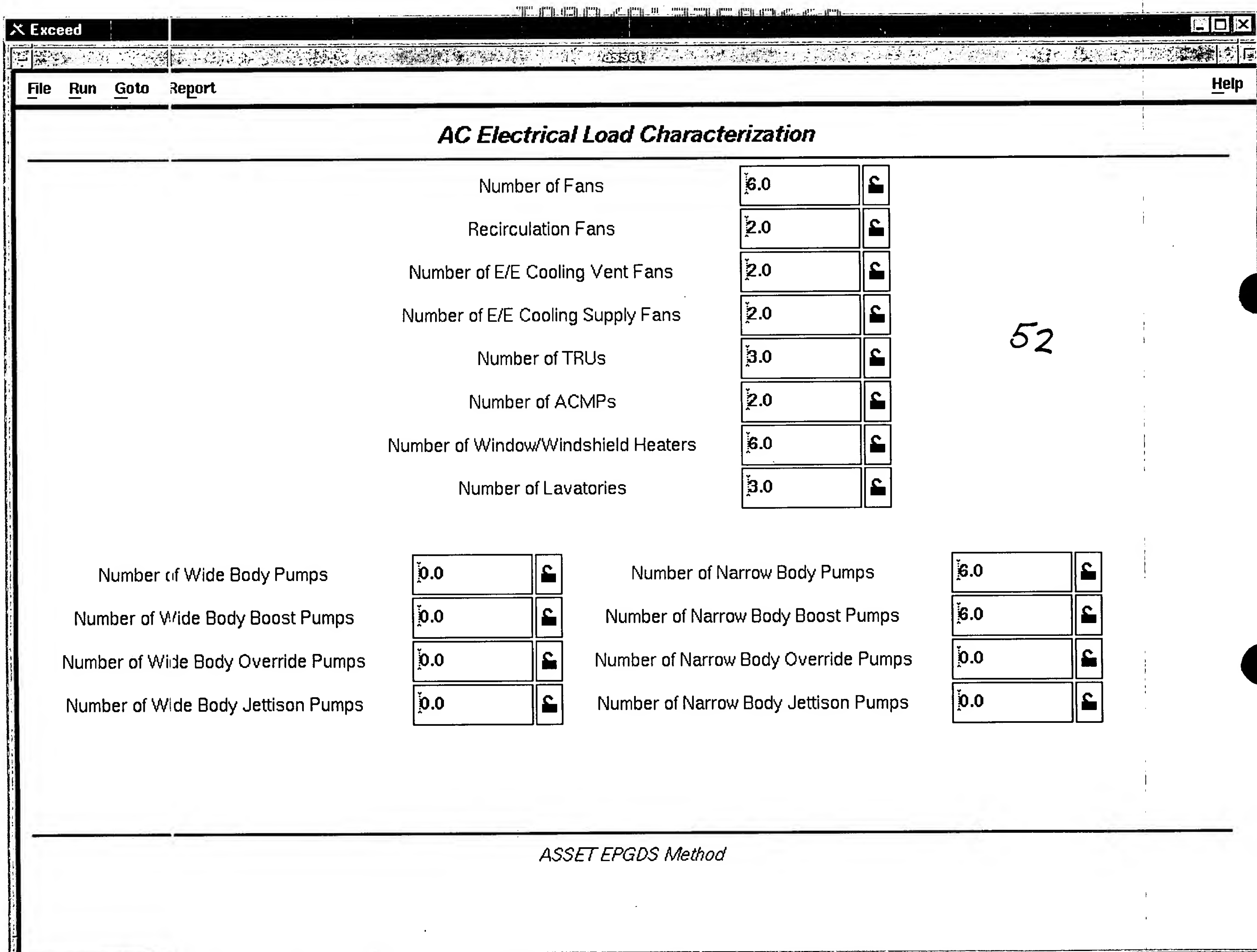

Exceed
File Run Goto Report
Help
AC Electrical Load Characterization
Number of Fans 6.0
Recirculation Fans 2.0
Number of E/E Cooling Vent Fans 2.0
Number of E/E Cooling Supply Fans 2.0
Number of TRUs 3.0
Number of ACMPs 2.0
Number of Window/Windshield Heaters 6.0
Number of Lavatories 3.0
52
Number of Wide Body Pumps 0.0
Number of Wide Body Boost Pumps 0.0
Number of Wide Body Override Pumps 0.0
Number of Wide Body Jettison Pumps 0.0
Number of Narrow Body Pumps 6.0
Number of Narrow Body Boost Pumps 6.0
Number of Narrow Body Override Pumps 0.0
Number of Narrow Body Jettison Pumps 0.0
ASSET EPGDS Method

FIGURE 6

Exceed

File Run Goto Report Help

AC Load Summary by Flight Phase

ATA Subsystems	Passenger Loading (kVA)	Passenger Loading (PF)	Engine Start (kVA)	Engine Start (PF)	Taxi Out (kVA)	Taxi Out (PF)
21 Air Conditioning	13.72	0.82	13.72	0.82	11.32	1.00
22 Auto Flight	0.68	0.90	0.68	0.90	0.68	0.90
23 Communications	0.64	1.00	0.95	1.00	2.42	1.00
24 Electrical Power	3.38	0.95	3.39	0.95	3.57	0.95
25 Equipment/Furnishings	25.10	1.00	23.24	1.00	38.93	1.00
26 Fire Protection	0.20	1.00	0.20	1.00	0.20	1.00
27 Flight Control	0.07	1.00	0.07	1.00	0.07	1.00
28 Fuel	0.00	1.00	6.08	0.83	6.08	0.83
29 Hydraulic Power System	19.28	0.75	19.28	0.75	19.28	0.75
30 Ice/Rain Protection	4.43	1.00	5.29	1.00	5.29	1.00
31 Instruments	0.30	1.00	0.30	1.00	0.30	1.00
32 Landing Gear	0.12	1.00	0.12	1.00	0.12	1.00

Maximum Flight Phase Load <> 116.88 KVA <> 0.96 PF

ASSET EPGDS Method

54

FIGURE 7A

Exceed

File Run Goto Report Help

AC Load Summary by Flight Phase

ATA Subsystems	Passenger Loading (kVA)	Passenger Loading (PF)	Engine Start (kVA)	Engine Start (PF)	Taxi Out (kVA)	Taxi Out (PF)
32 Landing Gear	0.12	1.00	0.12	1.00	0.12	1.00
33 Lights	10.68	1.00	9.71	1.00	9.32	1.00
34 Navigation	0.89	0.85	0.89	0.85	0.94	0.87
35 Oxygen	0.00	1.00	0.00	1.00	0.00	1.00
36 Pneumatics	0.00	1.00	0.23	1.00	0.00	1.00
38 Water/Waste	6.36	0.77	1.40	0.83	1.40	0.83
46 Electronic Library	0.00	1.00	0.00	0.00	0.00	1.00
49 Airplane Auxiliary Power	0.00	1.00	0.00	1.00	0.00	1.00
52 Doors	0.00	1.00	0.00	1.00	0.00	1.00
57 Folding Wing	0.00	0.00	0.00	0.00	0.00	1.00
73 Engine Fuel Control	0.00	1.00	0.70	0.74	0.70	0.74
74 Ignition	0.00	1.00	0.30	0.33	0.00	1.00

Maximum Flight Phase Load 116.88 KVA 0.96 PF

ASSET EPGDS Method

FIGURE 7B

Exceed

File Run Goto Report Help

AC Load Summary by Flight Phase

ATA Subsystems	Take-off & Climb (kVA)	Take-off & Climb (PF)	Cruise (kVA)	Cruise (PF)	Descent & Land (kVA)	Descent & Land (PF)
32 Landing Gear	0.12	1.00	0.12	1.00	0.23	1.00
33 Lights	10.97	1.00	7.73	1.00	11.51	1.00
34 Navigation	1.17	0.88	1.17	0.88	1.17	0.88
35 Oxygen	0.00	1.00	0.00	1.00	0.00	1.00
36 Pneumatics	0.00	1.00	0.00	1.00	0.00	1.00
38 Water/Waste	0.94	0.98	1.14	0.89	1.12	0.94
46 Electronic Library	0.00	0.00	0.00	0.00	0.00	0.00
49 Airplane Auxiliary Power	0.00	1.00	0.00	1.00	0.00	1.00
52 Doors	0.00	1.00	0.00	1.00	0.00	1.00
57 Folding Wing	0.00	1.00	0.00	1.00	0.00	1.00
73 Engine Fuel Control	0.00	1.00	0.00	1.00	0.00	1.00

Maximum Flight Phase Load <> 116.88 KVA <> 0.96 PF

ASSET EPGDS Method

FIGURE 7C

Exceed

File Run Goto Report Help

AC Load Summary by Flight Phase

ATA Subsystems	--- Take-off & Climb --- (kVA)	(PF)	--- Cruise --- (kVA)	(PF)	--- Descent & Land --- (kVA)	(PF)
57 Folding Wing	0.00	1.00	0.00	1.00	0.00	1.00
73 Engine Fuel Control	0.00	1.00	0.00	1.00	0.00	1.00
74 Ignition	0.00	1.00	0.00	1.00	0.00	1.00
75 Air	0.00	1.00	0.00	1.00	0.00	1.00
76 Engine Controls	0.00	1.00	0.00	1.00	0.00	1.00
77 Engine Indicating	0.02	1.00	0.02	1.00	0.02	1.00
78 Exhaust	0.00	1.00	0.00	1.00	0.00	1.00
79 Oil	0.00	1.00	0.00	1.00	0.00	1.00
80 Starting	0.00	1.00	0.00	1.00	0.00	1.00
Flight Phase Subtotals	101.63	0.96	100.16	0.96	65.71	0.93
Error/Growth Factor (15%)	15.24	0.96	15.02	0.96	9.86	0.93
Flight Phase Totals	116.88	0.96	115.19	0.96	75.57	0.93

Maximum Flight Phase Load <> 116.88 KVA <> 0.96 PF

ASSET EPGDS Method

FIGURE 7D

Exceed

File Run Goto Report Help

Essential AC Loads

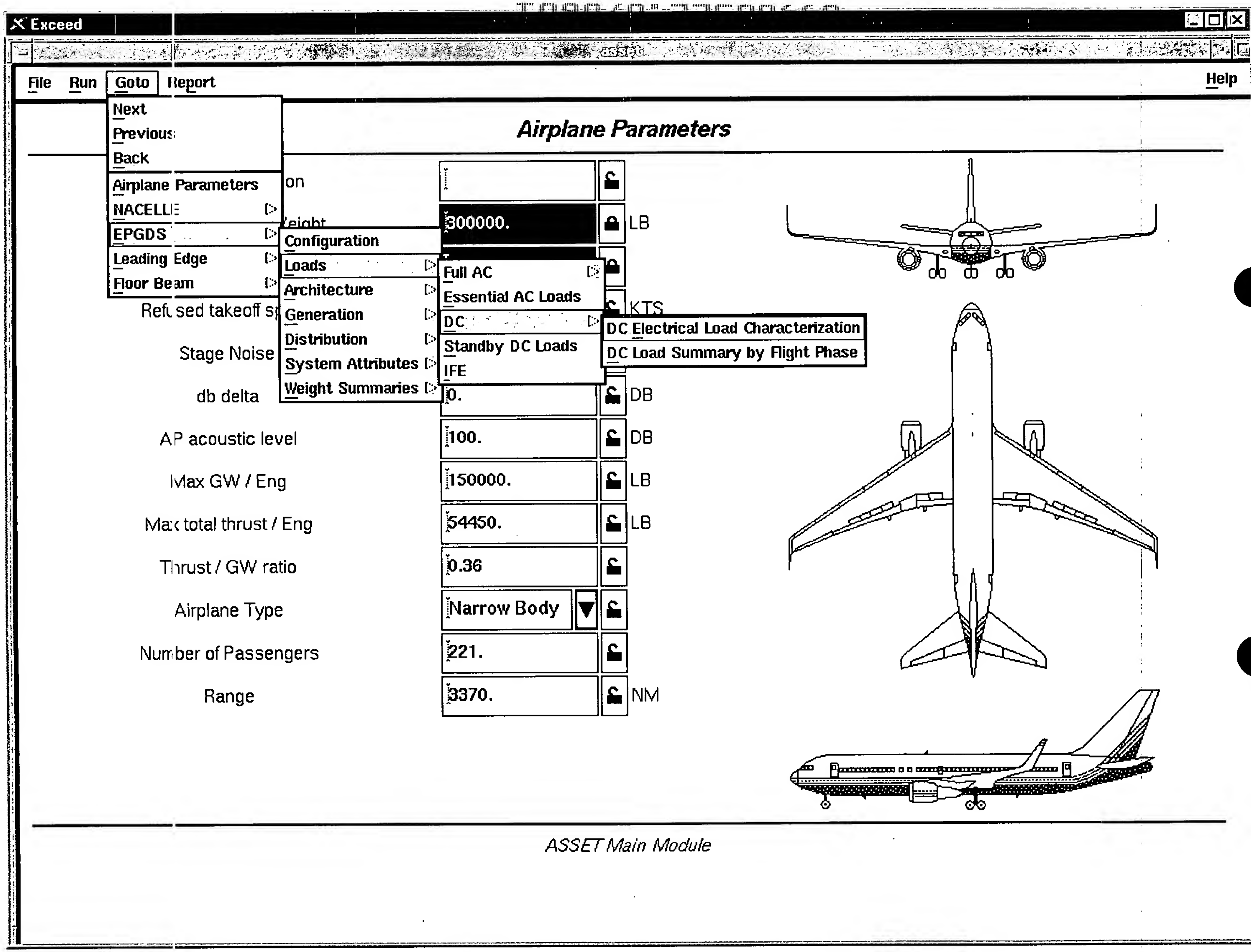
	Quantity		Load per Unit	
Number of Upper Recirculating Fans	2.0	@<>	1.28	KVA
Number of Lower Recirculating Fans	0.0	@<>	1.98	KVA
Number of E/E Cooling Supply Fans	2.0	@<>	3.20	KVA
Number of E/E Cooling Vent Fans	2.0	@<>	3.20	KVA
Number of Hydraulic ACMP Pumps	2.0	@<>	6.41	KVA
Number of Fuel Boost Pumps	6.0	@<>	1.75	KVA
Number of Fuel Override Pumps	0.0	@<>	4.66	KVA
Baseline Flight & Electronics, Ice & Rain			6.75	KVA
Baseline Flight & Electronics, Electronics			6.35	KVA

	Totals	
Total Fan Load	15.38	KVA
Total Pump Load	23.30	KVA
Passenger Load	7.08	KVA
Baseline Flight & Electronics Total Load	13.10	KVA
Subtotal of Essential Loads	58.86	KVA
General Feeder Loss	4.12	KVA
Total of Essential Loads	62.98	KVA

ASSET EPGDS Method

58

FIGURE 8



Exceed
File
Run
Goto
Report
Help
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Full AC
Essential AC Loads
DC
Standby DC Loads
IFE
DC Electrical Load Characterization
DC Load Summary by Flight Phase
Airplane Parameters
300000.
LB
KTS
Stage Noise
db delta
0.
DB
AP acoustic level
100.
DB
Max GW / Eng
150000.
LB
Max total thrust / Eng
54450.
LB
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
NM
ASSET Main Module

FIGURE 9

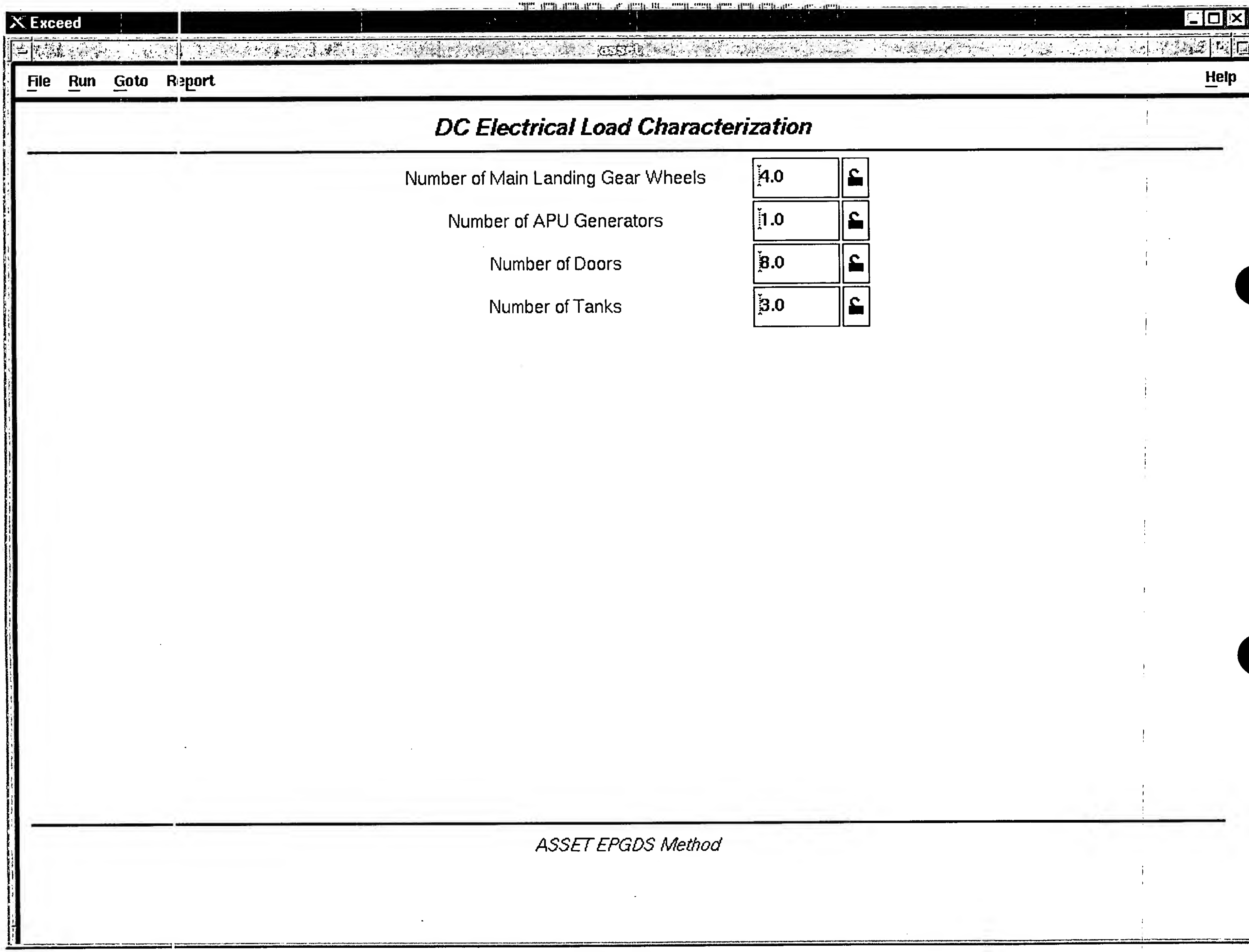

Exceed
File Run Goto Report
Help
DC Electrical Load Characterization
Number of Main Landing Gear Wheels
4.0
Number of APU Generators
1.0
Number of Doors
8.0
Number of Tanks
3.0
ASSET EPGDS Method

FIGURE 10

Exceed

File Run Goto Report Help

DC Load Summary by Flight Phase

ATA Subsystems	Pass Loading (Amps)	Engine Start (Amps)	Taxi-Out (Amps)	Take-Off & Climb (Amps)	Cruise (Amps)	Descent & Land (Amps)
21 Air Conditioning	13.40	14.60	15.01	15.14	15.14	15.14
22 Auto Flight	9.83	9.83	9.83	10.42	10.75	13.60
23 Communications (IFE, AVOD)	6.74	6.56	7.69	6.90	7.13	6.90
24 Electrical Power	3.36	2.27	2.27	2.27	2.27	2.27
25 Equipment/Furnishings	18.22	18.04	18.04	18.04	18.04	18.04
26 Fire Protection	0.54	0.54	0.54	0.54	0.54	0.54
27 Flight Control	0.07	0.07	0.07	0.07	0.07	0.07
28 Fuel	6.51	1.21	1.21	1.21	1.21	1.21
29 Hydraulic Power System	0.80	0.80	0.80	0.80	0.80	0.80
30 Ice/Rain Protection	3.20	5.30	12.42	12.42	5.40	12.42
31 Instruments	36.81	36.70	36.70	36.70	36.70	36.70

Maximum Flight Phase Direct Current Load 139.90 AMPS

ASSET EPGDS Method

FIGURE 11A

Exceed

File Run Goto Report Help

DC Load Summary by Flight Phase

ATA Subsystems	Pass Loading (Amps)	Engine Start (Amps)	Taxi-Out (Amps)	Take-Off & Climb (Amps)	Cruise (Amps)	Descent & Land (Amps)
31 Instruments	36.81	36.70	36.70	36.70	36.70	36.70
32 Landing Gear	3.69	3.69	3.67	3.59	3.59	4.07
33 Lights	15.84	15.77	16.38	19.47	17.07	16.05
34 Navigation	1.99	1.95	2.45	2.45	2.45	2.45
35 Oxygen	0.00	0.00	0.00	0.00	0.00	0.00
36 Pneumatics	4.07	4.07	4.07	4.07	4.07	4.07
38 Water/Waste	2.07	1.53	1.53	2.07	1.65	2.07
46 Electronic Library	0.00	0.00	0.00	0.00	0.00	0.00
49 Airplane Auxiliary Power	1.20	1.20	1.20	1.20	0.00	0.00
52 Doors	1.00	1.50	1.50	1.50	1.50	1.50
57 Folding Wing	0.00	0.00	0.00	0.00	0.00	0.00

Maximum Flight Phase Direct Current Load 139.90 AMPS

ASSET EPGDS Method

FIGURE 11B

Exceed

File Run Goto Report Help

DC Load Summary by Flight Phase

ATA Subsystems	Pass Loading (Amps)	Engine Start (Amps)	Taxi-Out (Amps)	Take-Off & Climb (Amps)	Cruise (Amps)	Descent & Land (Amps)
52 Doors	1.00	1.50	1.50	1.50	1.50	1.50
57 Folding Wing	0.00	0.00	0.00	0.00	0.00	0.00
73 Engine Fuel Control	0.00	0.07	0.37	0.37	0.37	0.37
74 Ignition	0.00	0.00	0.00	0.00	0.00	0.00
75 Air	0.00	0.00	0.00	0.00	0.00	0.00
76 Engine Controls	1.12	1.12	0.65	0.65	0.65	0.65
77 Engine Indicating	0.00	0.00	0.00	0.00	0.00	0.00
78 Exhaust	0.00	0.00	0.00	0.00	0.00	0.60
79 Oil	0.00	0.00	0.00	0.00	0.00	0.00
80 Starting	0.00	3.20	0.00	0.00	0.00	0.00
Flight Phase Totals	130.46	130.02	136.40	139.90	129.41	139.53

Maximum Flight Phase Direct Current Load 139.90 AMPS

ASSET EPGDS Method

FIGURE 11C

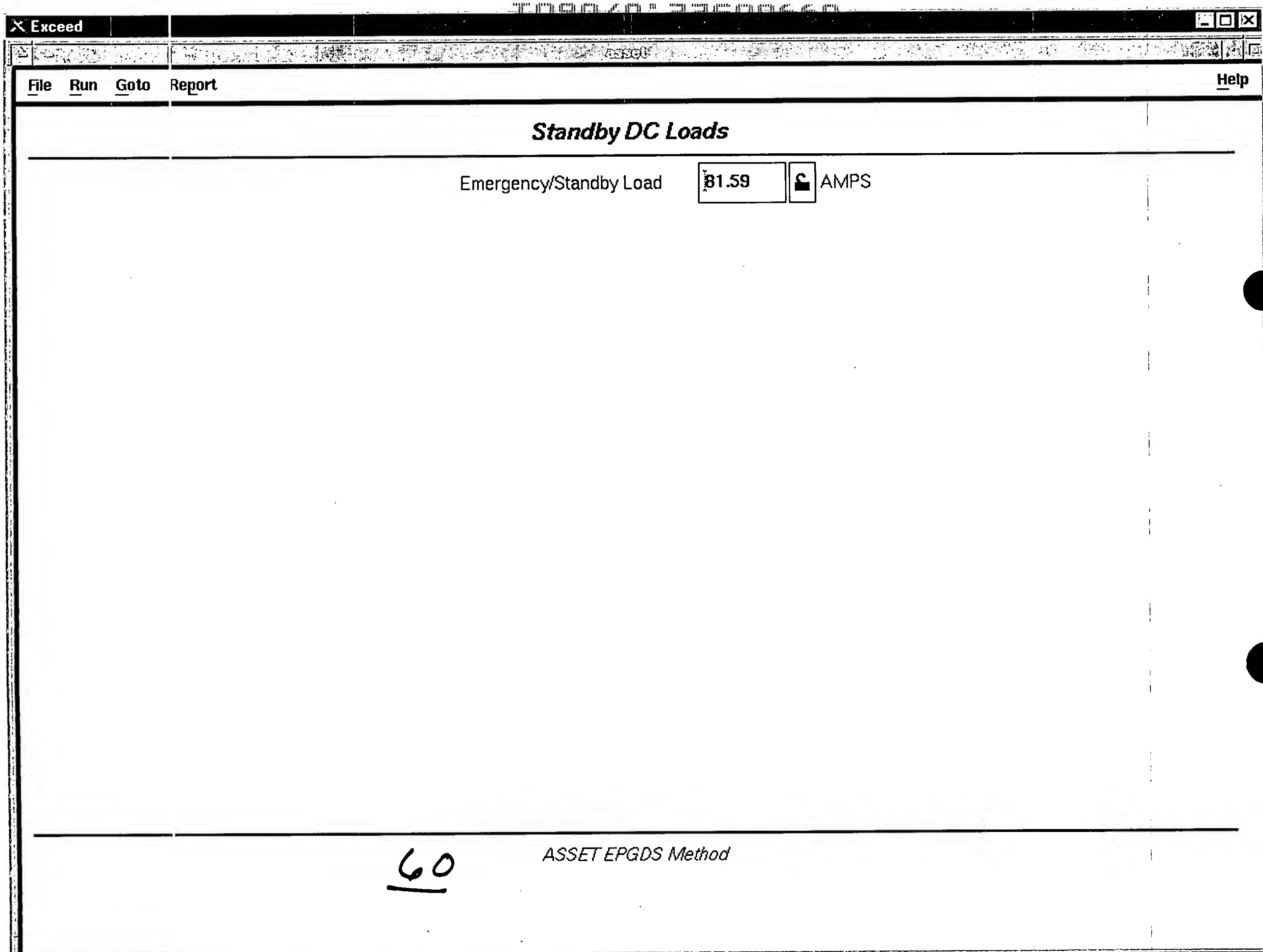

Exceed
asset
File Run Goto Report
Help
Standby DC Loads
Emergency/Standby Load
81.59
AMPS
60
ASSET EPGDS Method

FIGURE 12

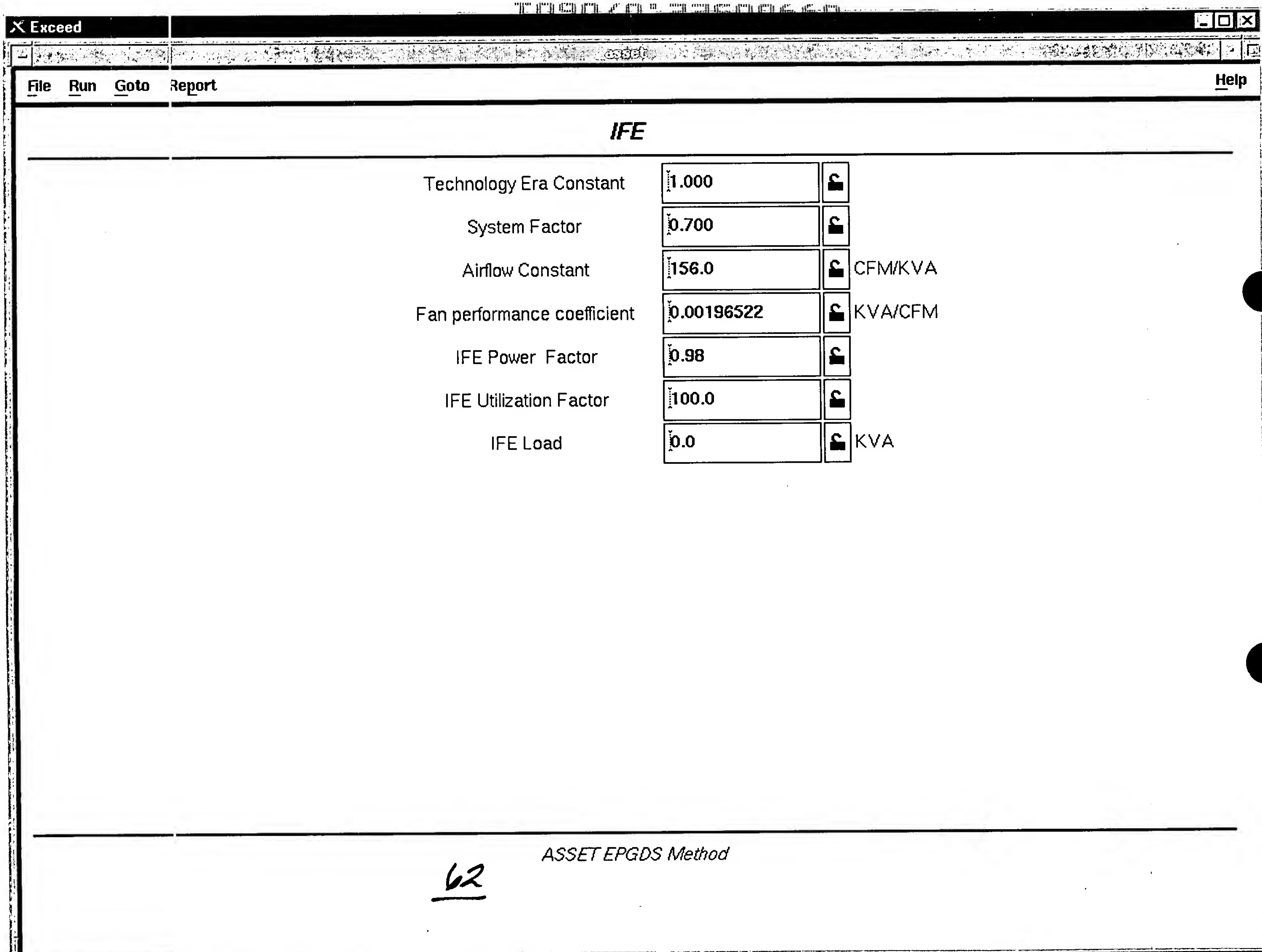
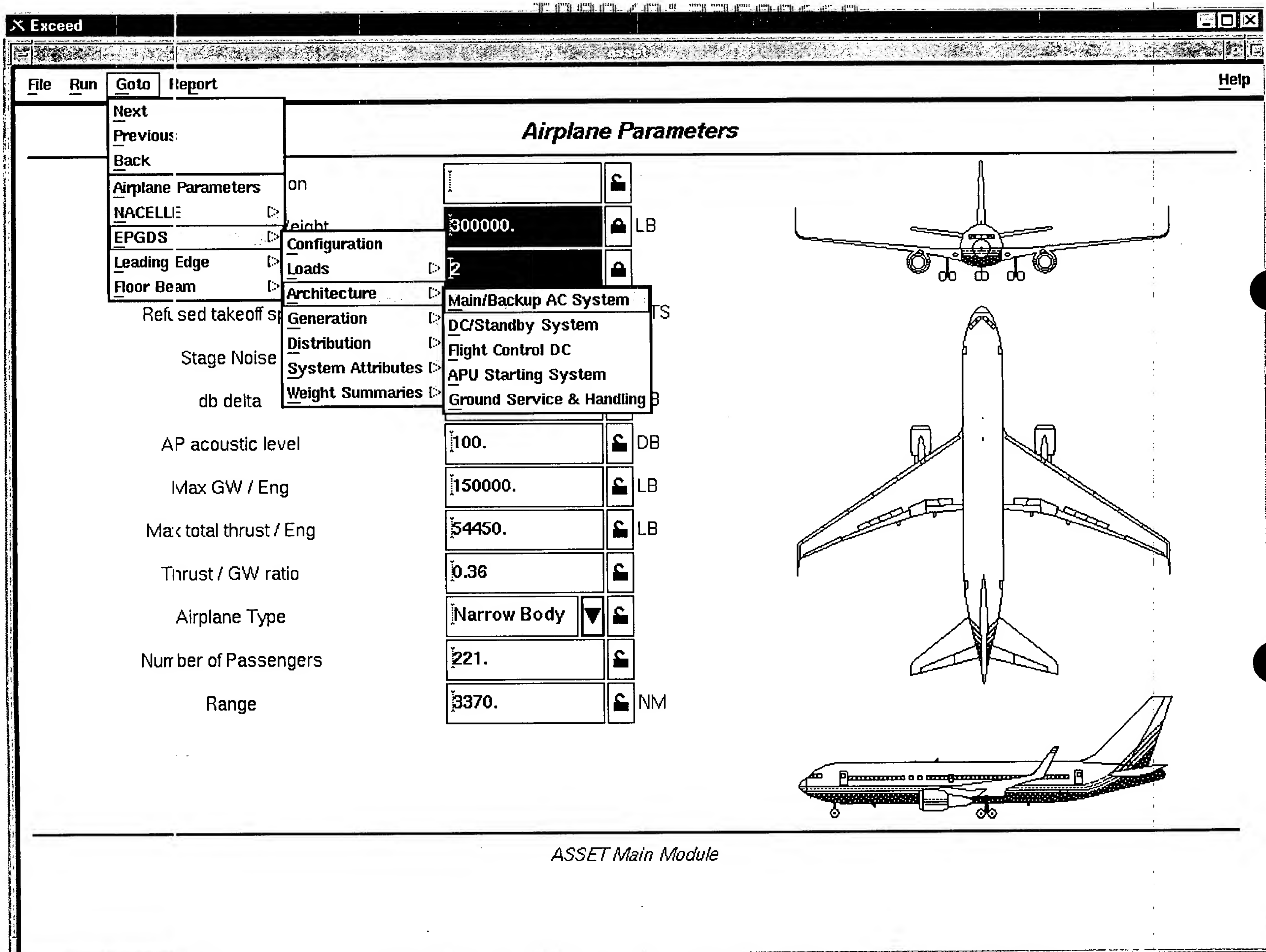

Exceed
asset
File
Run
Goto
Report
Help
IFE
Technology Era Constant
1.000
System Factor
0.700
Airflow Constant
156.0
CFM/KVA
Fan performance coefficient
0.00196522
KVA/CFM
IFE Power Factor
0.98
IFE Utilization Factor
100.0
IFE Load
0.0
KVA
ASSET EPGDS Method
62

FIGURE 13



Exceed
File
Run
Goto
Report
Help
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Main/Backup AC System
DC/Standby System
Flight Control DC
APU Starting System
Ground Service & Handling
Airplane Parameters
on
300000.
LB
2
Refl sed takeoff s
TS
Stage Noise
db delta
AP acoustic level
100.
DB
Max GW / Eng
150000.
LB
Max total thrust / Eng
54450.
LB
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
NM
ASSET Main Module

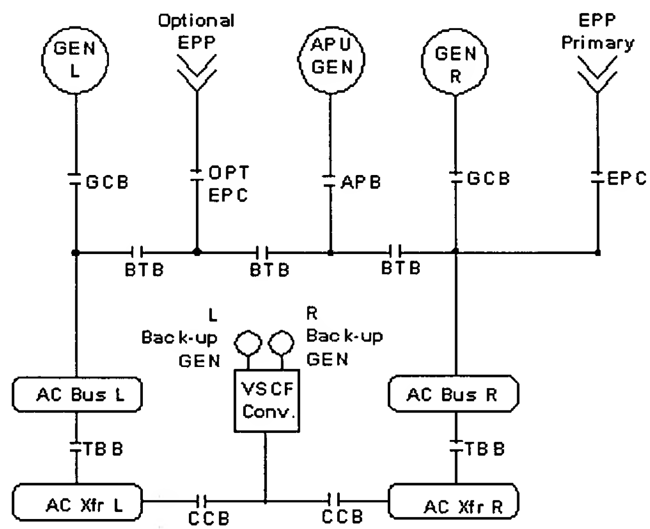
FIGURE 14

Exceed

File Run Goto Report Help

Main/Backup AC System

Twin, Fly-by-Wire, Isolated Architecture

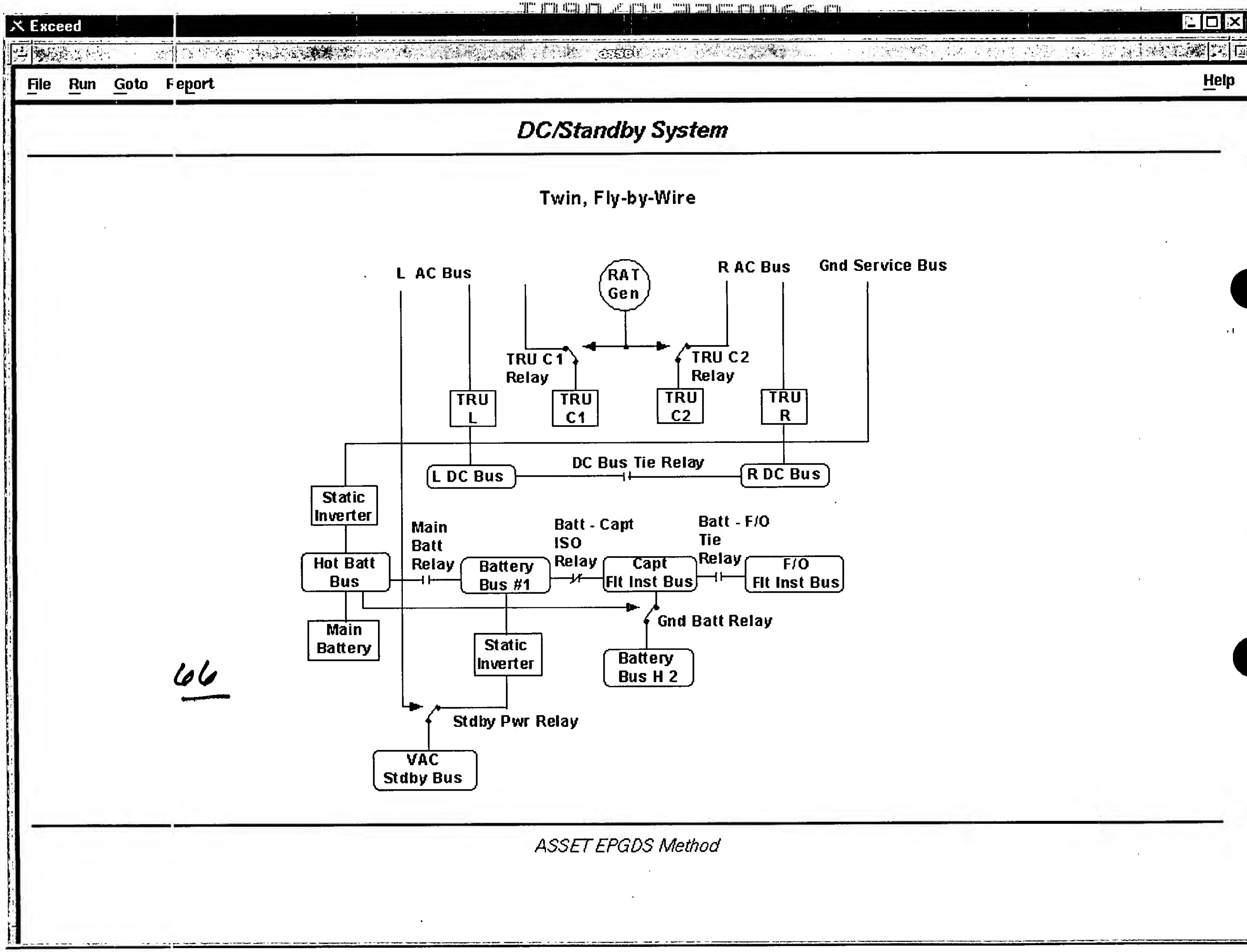


If selected, HMG Backup System not reflected in graphics.

Main Generator Type	IDG	In-Flight APU Generator	In-flight operable
Optional External Power Panel	☑ TRUE	Backup Generator	VSCF: Stand-Alone Converter
Number of Generators per Engine	1	HMG Option?	☐ FALSE

ASSET EPGDS Method

FIGURE 15



Exceed
File
Run
Goto
Feport
Help
DC/Standby System
Twin, Fly-by-Wire
L AC Bus
RAT Gen
R AC Bus
Gnd Service Bus
TRU C1 Relay
TRU C2 Relay
TRU L
TRU C1
TRU C2
TRU R
L DC Bus
DC Bus Tie Relay
R DC Bus
Static Inverter
Main Batt Relay
Batt - Capt ISO Relay
Batt - F/O Tie Relay
Hot Batt Bus
Battery Bus #1
Capt Flt Inst Bus
F/O Flt Inst Bus
Gnd Batt Relay
Main Battery
Static Inverter
Battery Bus H 2
66
Stdby Pwr Relay
VAC Stdby Bus
ASSET EPGDS Method

FIGURE 16

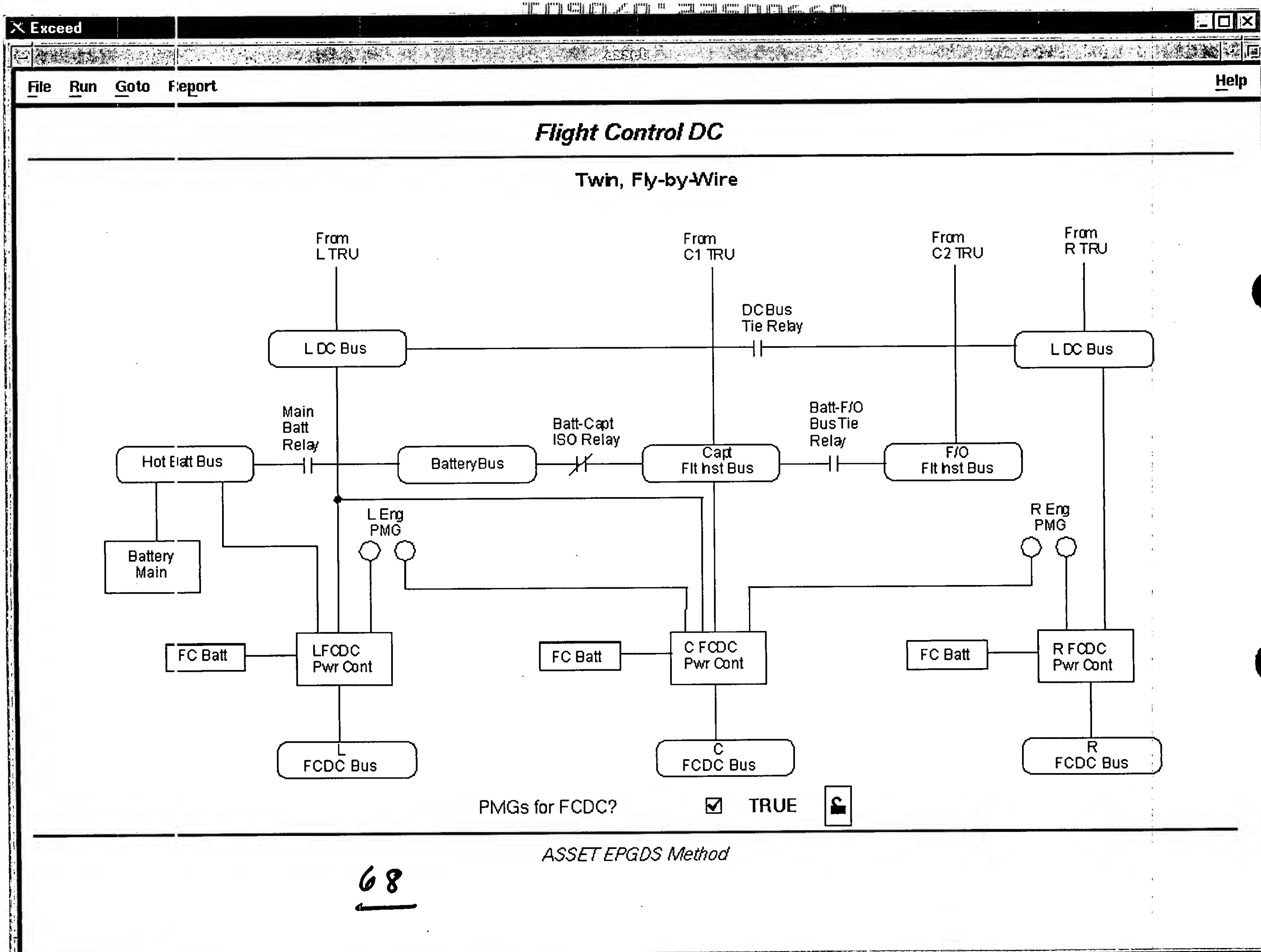

Exceed
File
Run
Goto
Report
Help
Flight Control DC
Twin, Fly-by-Wire
From L TRU
From C1 TRU
From C2 TRU
From R TRU
DC Bus Tie Relay
L DC Bus
L DC Bus
Main Batt Relay
Batt-Capt ISO Relay
Batt-F/O Bus Tie Relay
Hot Batt Bus
Battery Bus
Capt Flt Inst Bus
F/O Flt Inst Bus
Battery Main
L Eng PMG
R Eng PMG
FC Batt
LFCDC Pwr Cont
FC Batt
C FCDC Pwr Cont
FC Batt
R FCDC Pwr Cont
L FCDC Bus
C FCDC Bus
R FCDC Bus
PMGs for FCDC?
TRUE
ASSET EPGDS Method
68

FIGURE 17

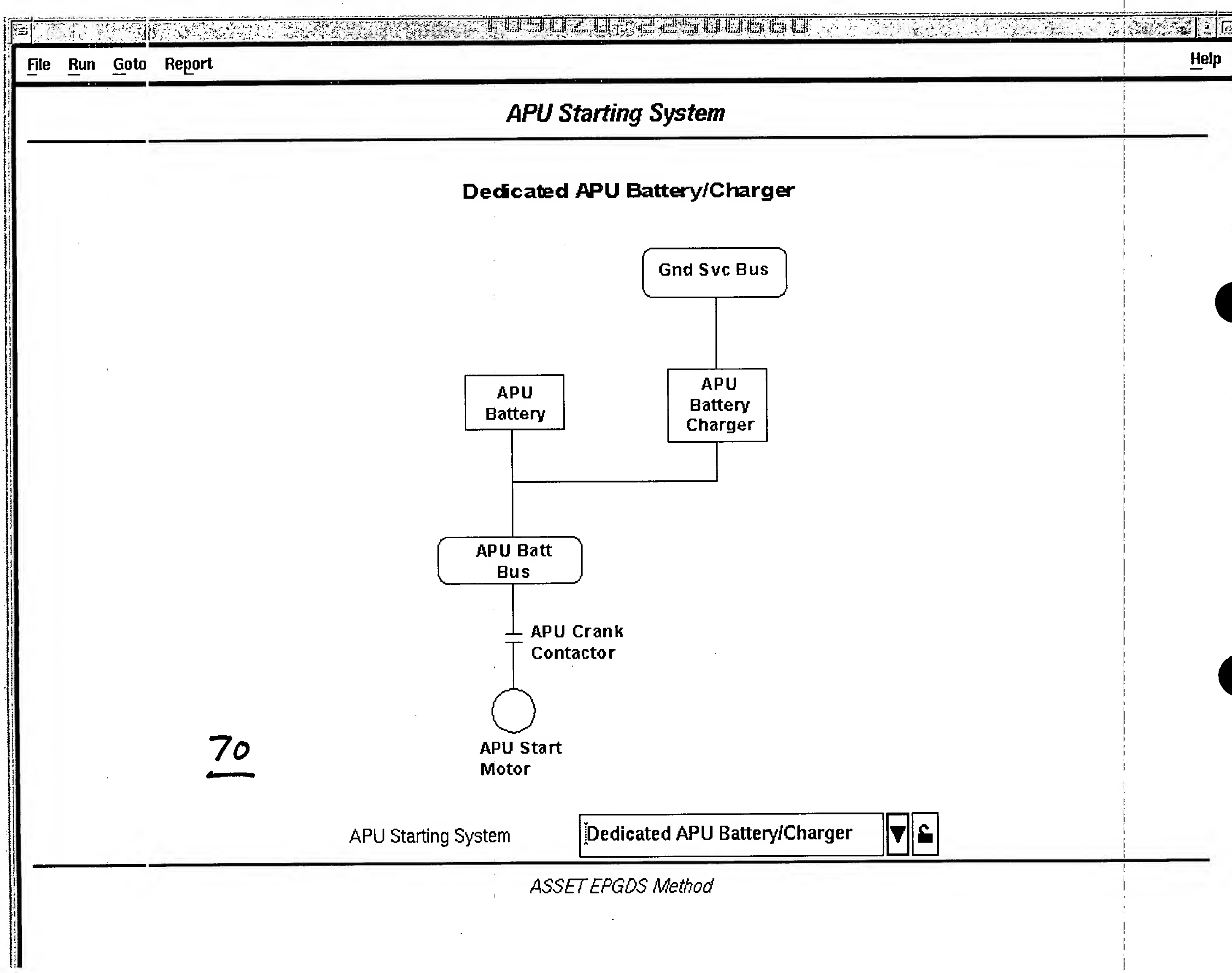
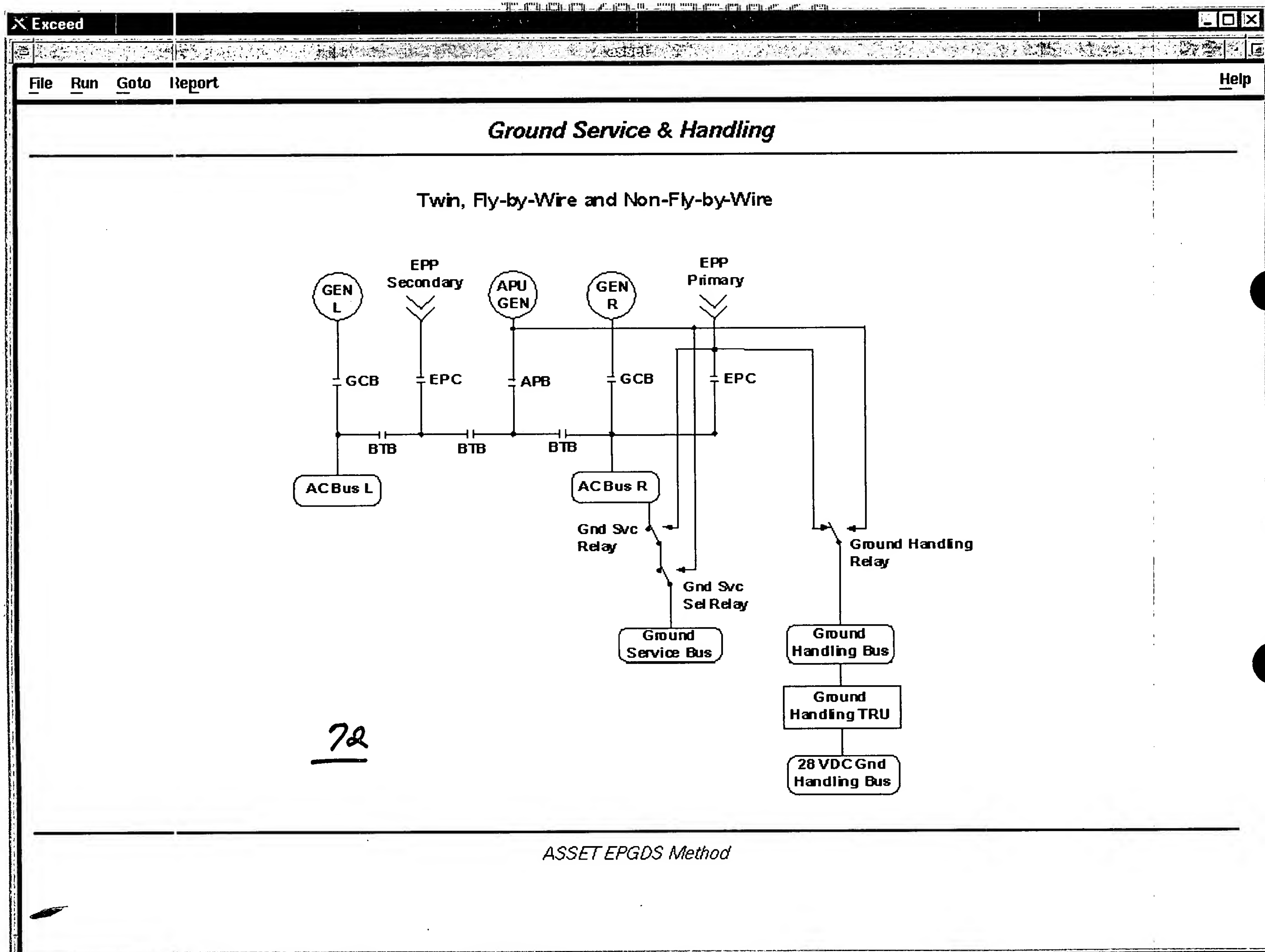

File Run Goto Report
Help
APU Starting System
Dedicated APU Battery/Charger
Gnd Svc Bus
APU Battery
APU Battery Charger
APU Batt Bus
APU Crank Contactor
APU Start Motor
70
APU Starting System
Dedicated APU Battery/Charger
ASSET EPGDS Method

FIGURE 18



Exceed
File
Run
Goto
Report
Help
Ground Service & Handling
Twin, Fly-by-Wire and Non-Fly-by-Wire
GEN L
EPP Secondary
APU GEN
GEN R
EPP Primary
GCB
EPC
APB
GCB
EPC
BTB
BTB
BTB
AC Bus L
AC Bus R
Gnd Svc Relay
Gnd Svc Sel Relay
Ground Handling Relay
Ground Service Bus
Ground Handling Bus
Ground Handling TRU
28 VDC Gnd Handling Bus
72
ASSET EPGDS Method

FIGURE 19

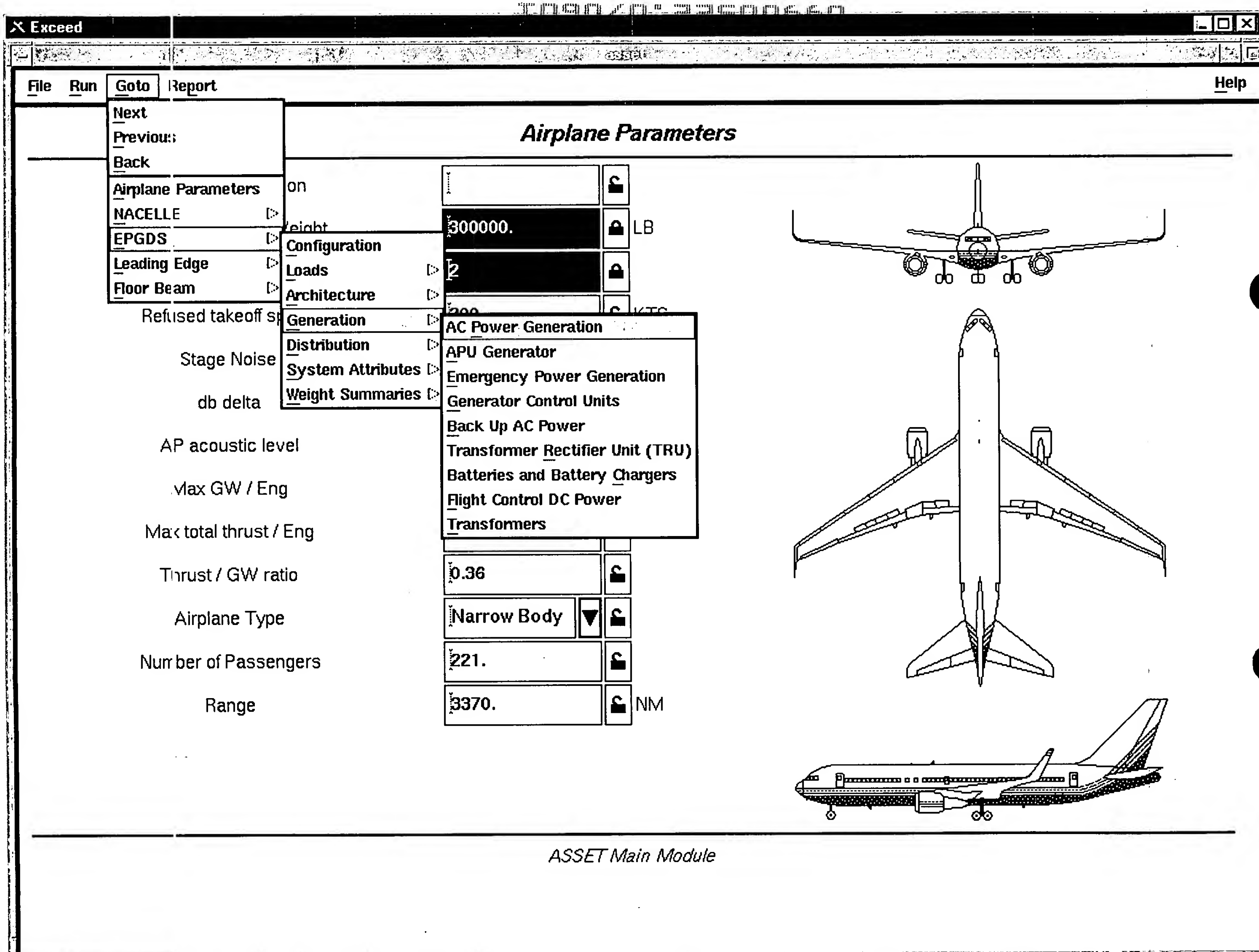

Exceed
File
Run
Goto
Report
Help
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
AC Power Generation
APU Generator
Emergency Power Generation
Generator Control Units
Back Up AC Power
Transformer Rectifier Unit (TRU)
Batteries and Battery Chargers
Flight Control DC Power
Transformers
Airplane Parameters
300000.
LB
2
Refused takeoff sp
Stage Noise
db delta
AP acoustic level
Max GW / Eng
Max total thrust / Eng
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
NM
ASSET Main Module

FIGURE 20

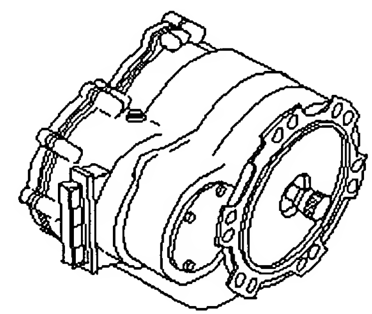
Exceed

File Run Goto Report Help

AC Power Generation

Generator Input Speed	24000.	RPM
Method of Cooling	Oil	
Generator Capacity	90.0	KVA
Main AC Power Generator Weight	110.5	LB
VSCF Converter Config.	None	
Maximum Converter Load	0.0	KVA
Main Converter Unit Weight	0.0	LB

IDG



ATA Chapter	Section Title	Motor Controller Load KVA	Motor Controller Weight LB
		0.0	0.0
		0.0	0.0
		0.0	0.0
		0.0	0.0
		0.0	0.0
		0.0	0.0

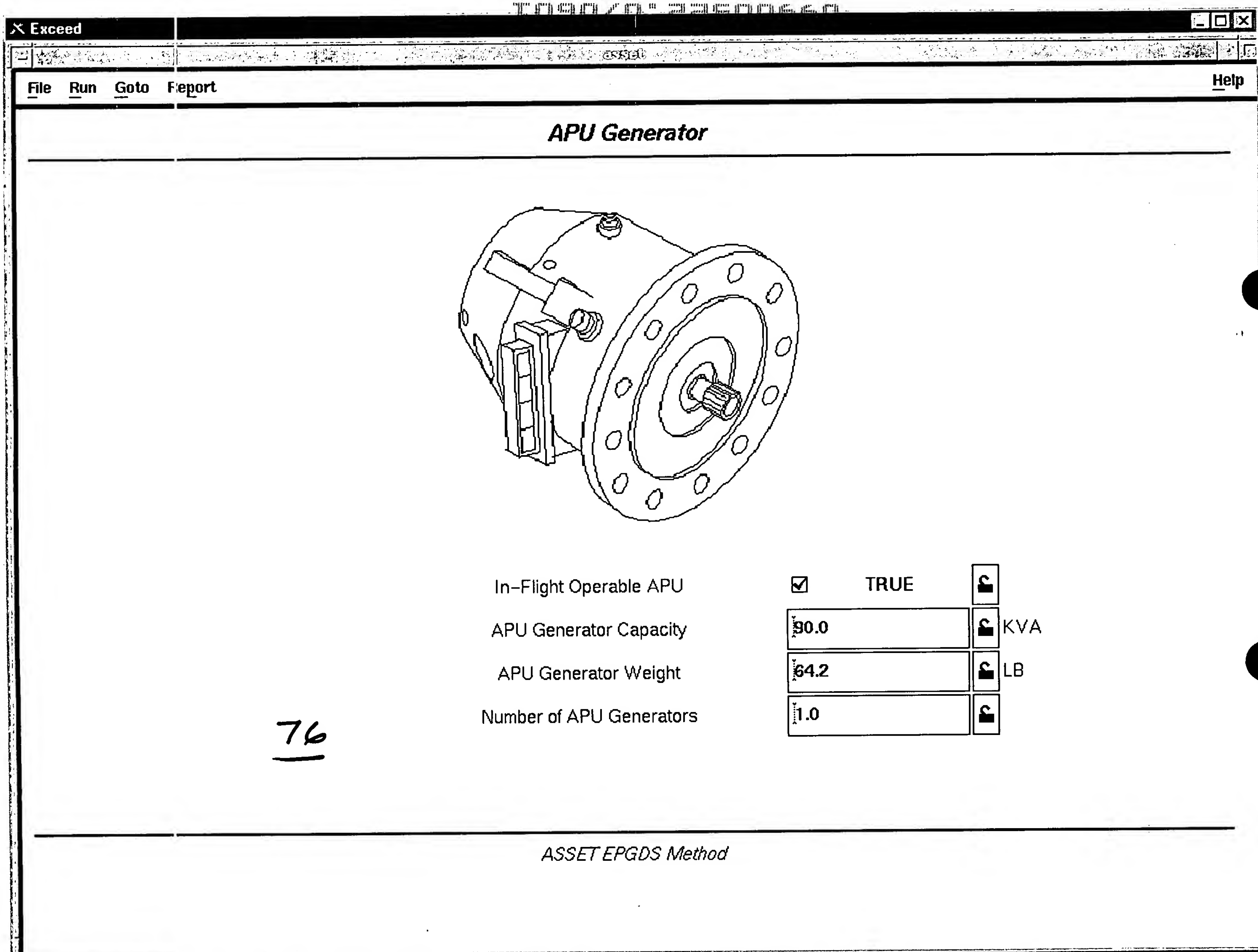
IDG Hydraulics: High Power Density Hyds

Total Motor Controller Weight: 0.0 LB

ASSET EPGDS Method

74

FIGURE 21


Exceed
File Run Goto Report Help
APU Generator
In-Flight Operable APU
TRUE
APU Generator Capacity
90.0
KVA
APU Generator Weight
64.2
LB
Number of APU Generators
1.0
ASSET EPGDS Method

76

FIGURE 22

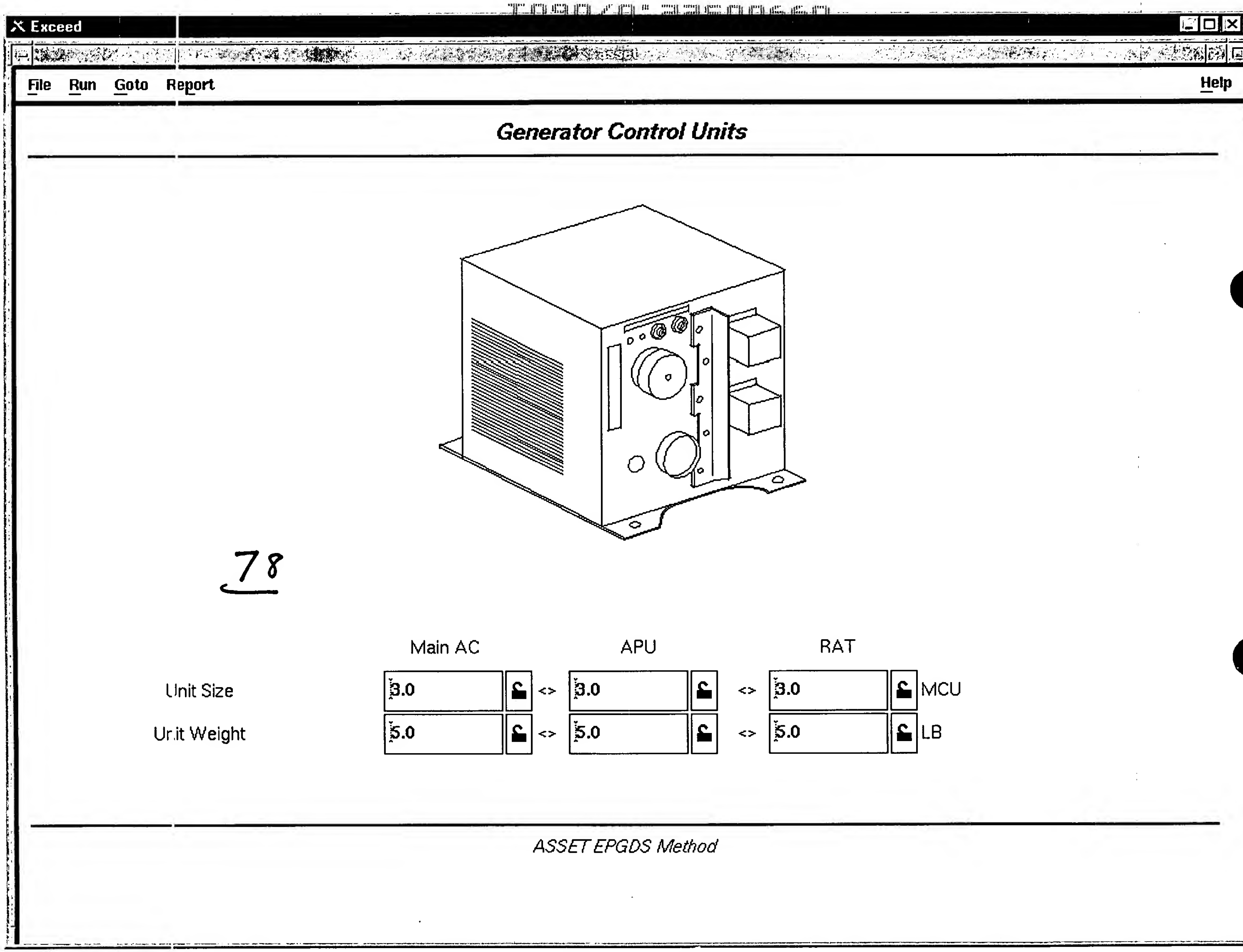

Exceed
File Run Goto Report
Help
Generator Control Units
78
Main AC
APU
RAT
Unit Size
3.0
<>
3.0
<>
3.0
MCU
Unit Weight
5.0
<>
5.0
<>
5.0
LB
ASSET EPGDS Method

FIGURE 23

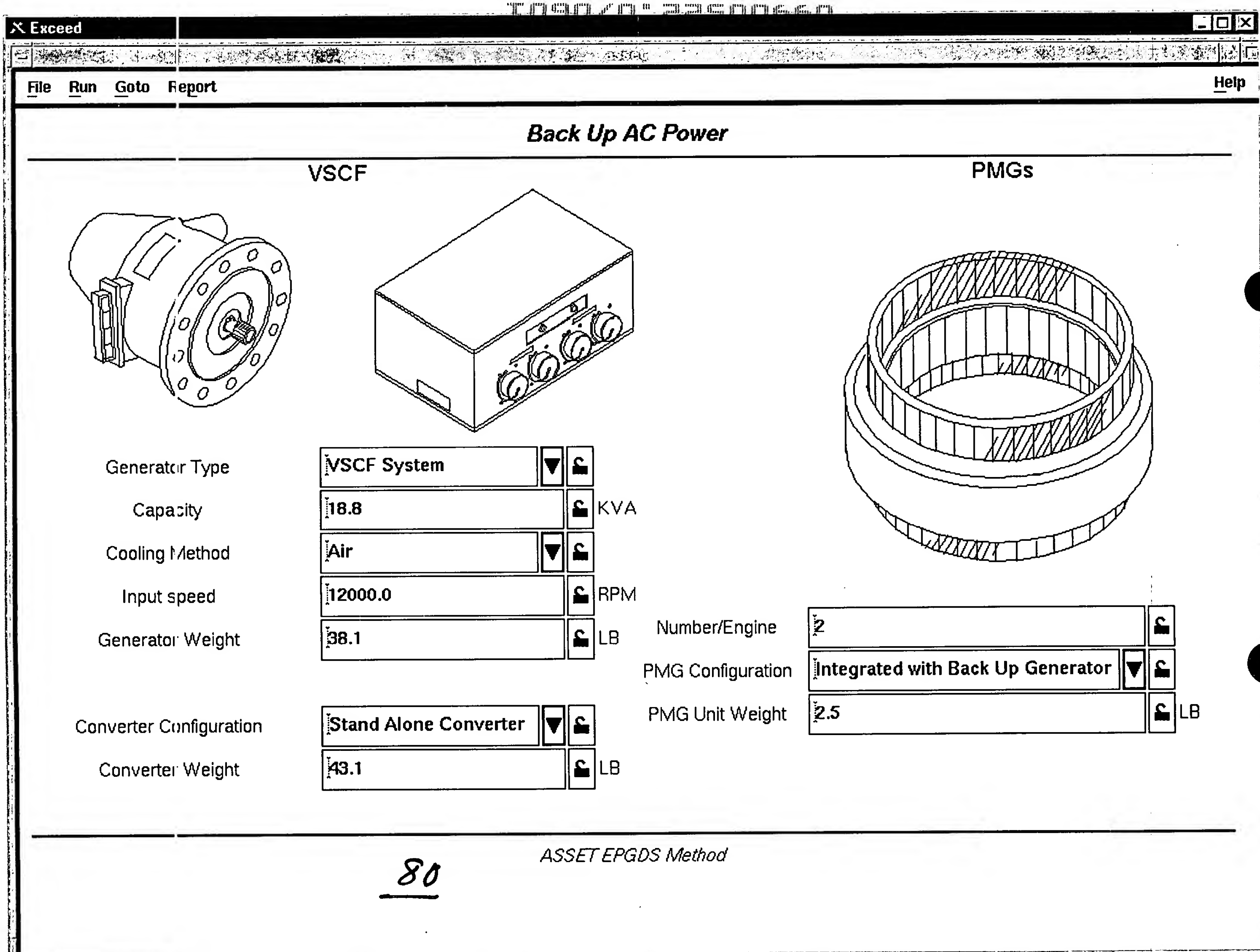
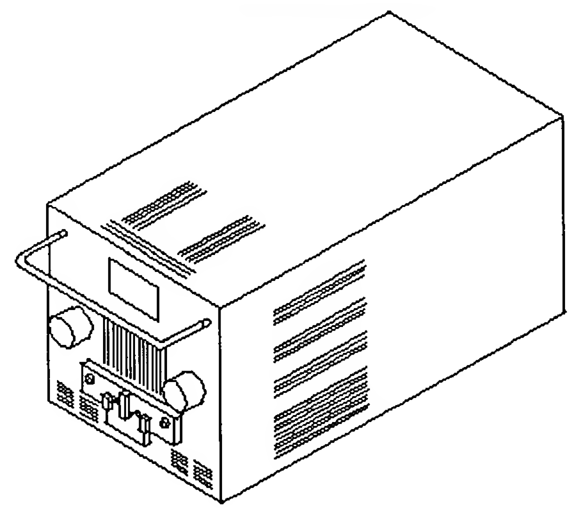

Exceed
File
Run
Goto
Report
Help
Back Up AC Power
VSCF
PMGs
Generator Type
VSCF System
Capacity
18.8
KVA
Cooling Method
Air
Input speed
12000.0
RPM
Generator Weight
38.1
LB
Converter Configuration
Stand Alone Converter
Converter Weight
43.1
LB
Number/Engine
2
PMG Configuration
Integrated with Back Up Generator
PMG Unit Weight
2.5
LB
ASSET EPGDS Method
80

FIGURE 24

Exceed

File Run Goto Report Help

Transformer Rectifier Unit (TRU)



Number of TRUs	3.0	
DC Output	150.0	AMPS
Efficiency	82.0	%
TRU Weight	10.7	LB

ASSET EPGDS Method

FIGURE 25

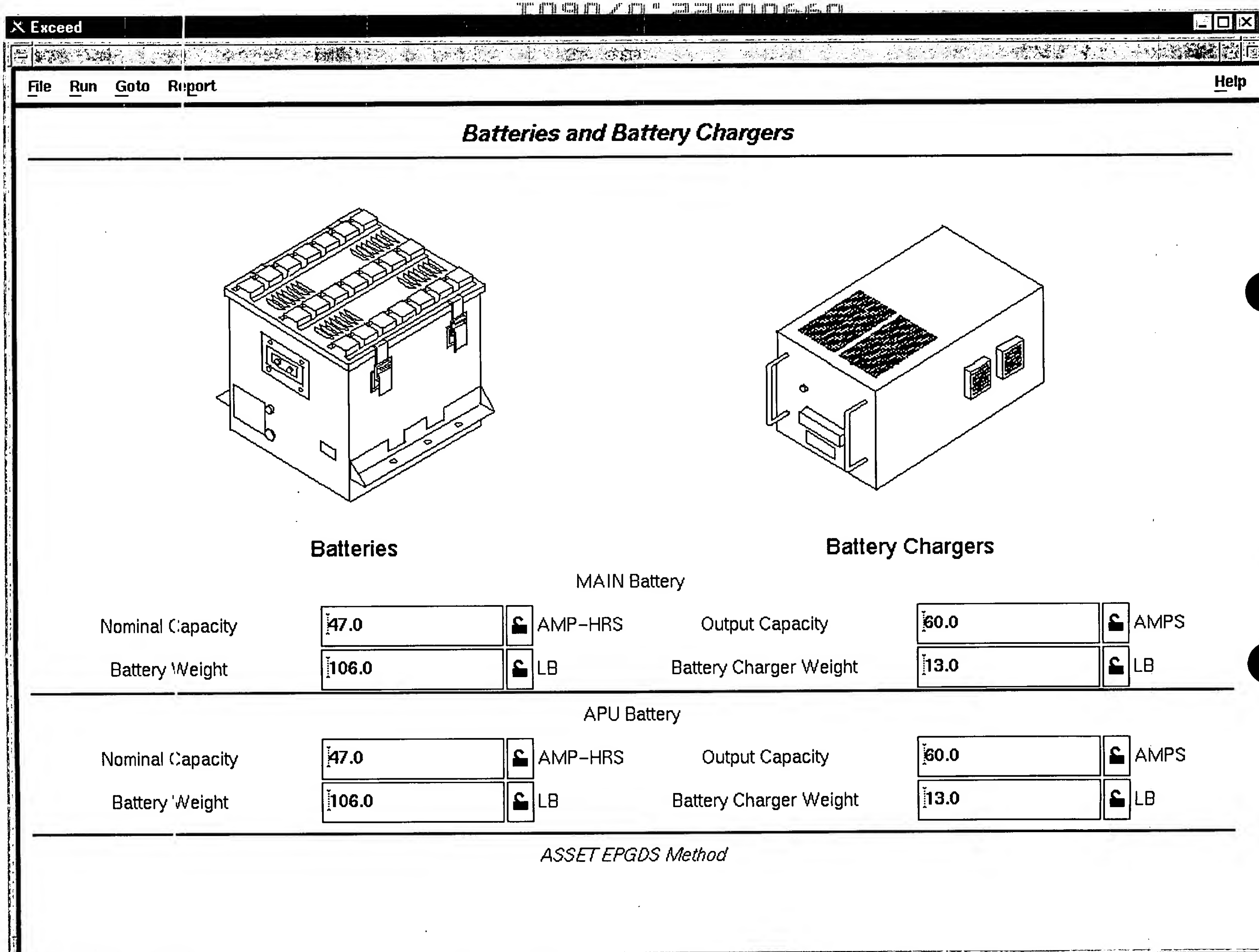

Exceed
File Run Goto Report
Help
Batteries and Battery Chargers
Batteries
Battery Chargers
MAIN Battery
Nominal Capacity
47.0
AMP-HRS
Output Capacity
60.0
AMPS
Battery Weight
106.0
LB
Battery Charger Weight
13.0
LB
APU Battery
Nominal Capacity
47.0
AMP-HRS
Output Capacity
60.0
AMPS
Battery Weight
106.0
LB
Battery Charger Weight
13.0
LB
ASSET EPGDS Method

FIGURE 26

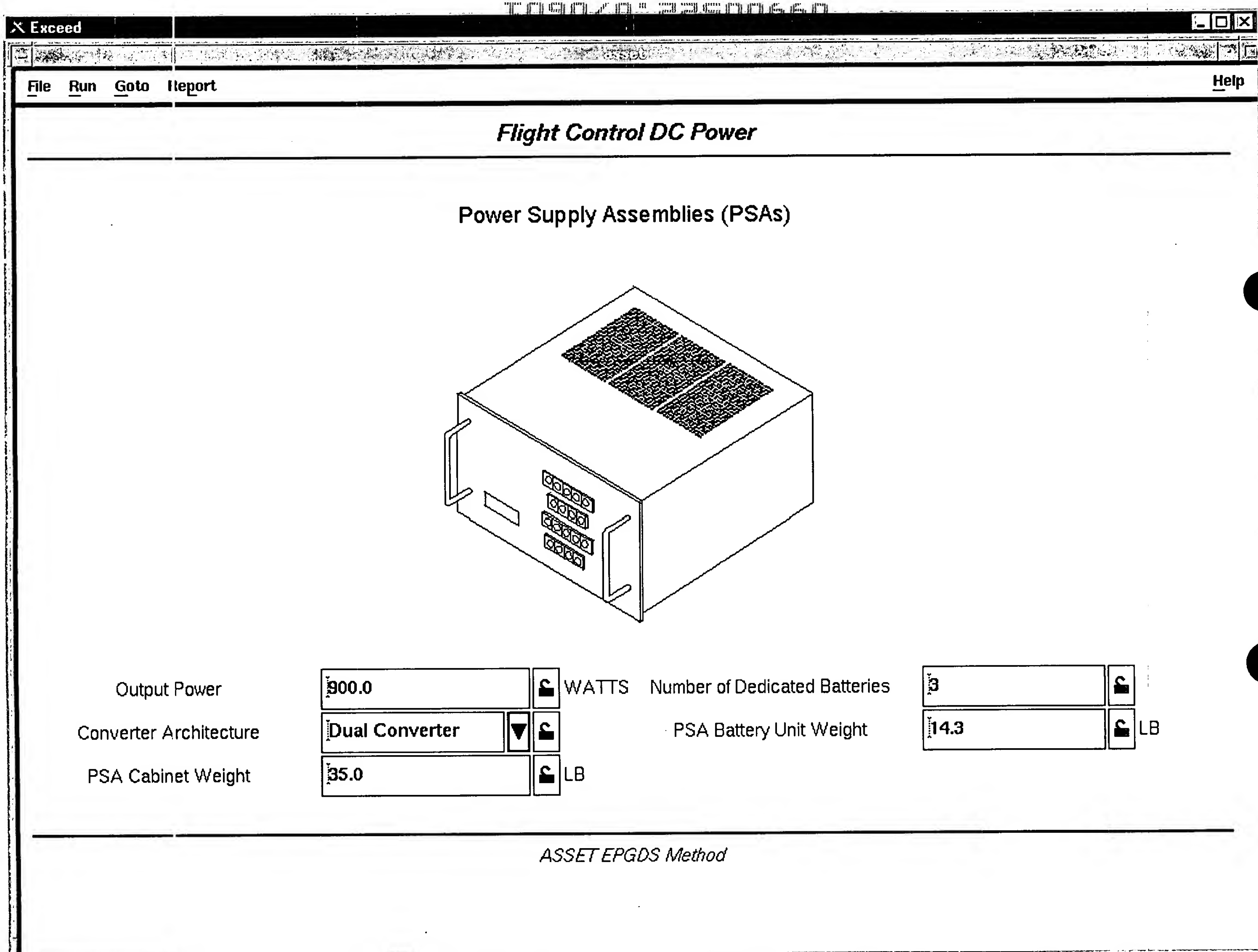
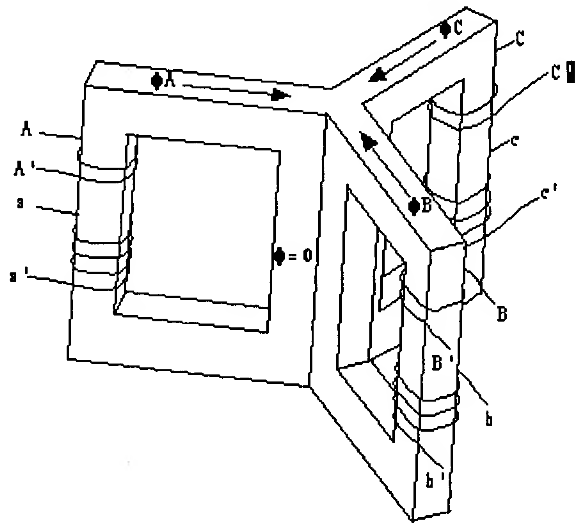

Exceed
File Run Goto Report
Help
Flight Control DC Power
Power Supply Assemblies (PSAs)
Output Power
900.0
WATTS
Converter Architecture
Dual Converter
PSA Cabinet Weight
35.0
LB
Number of Dedicated Batteries
3
PSA Battery Unit Weight
14.3
LB
ASSET EPGDS Method

FIGURE 27

Exceed

File Run Goto Report Help

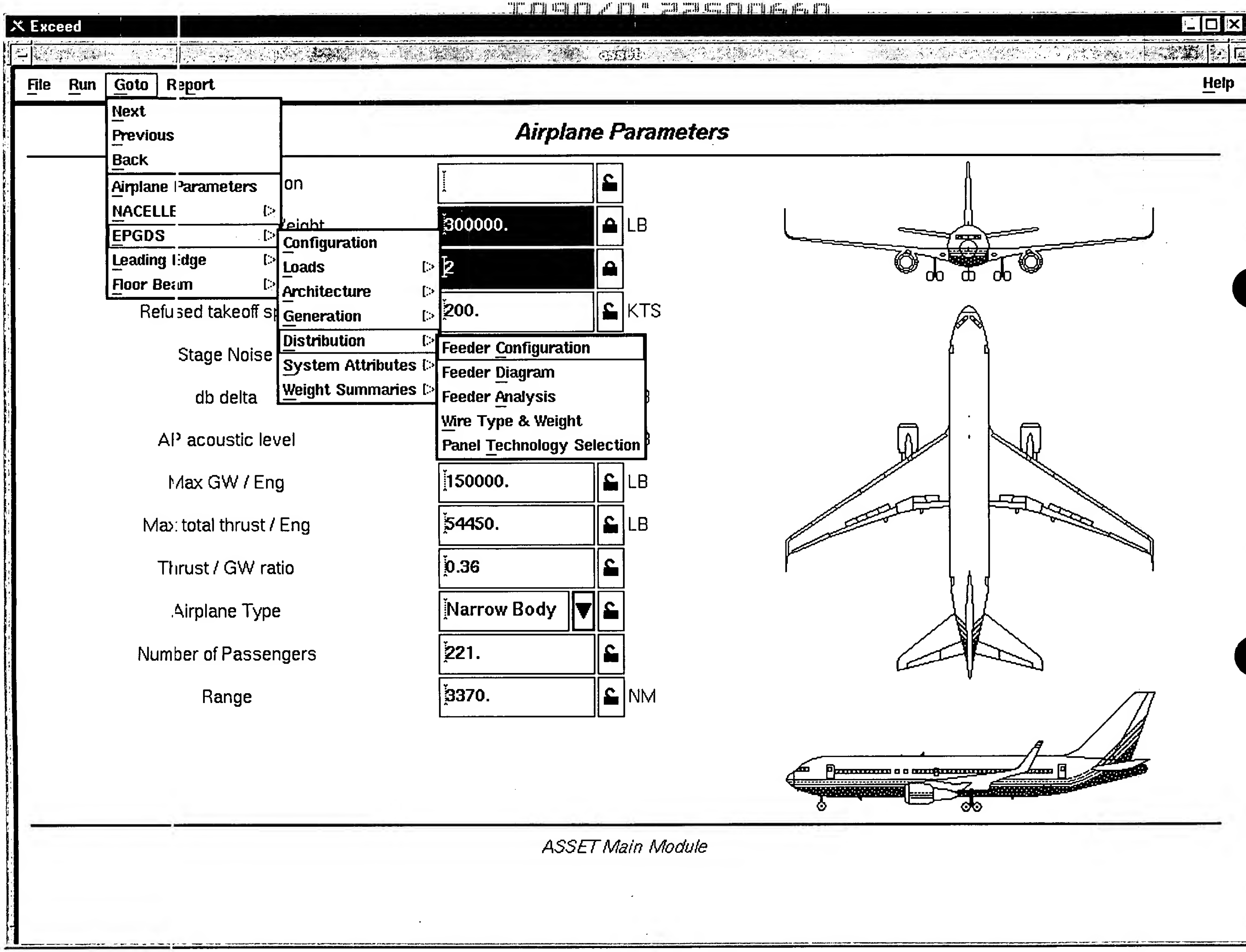
Transformers



Step–Up Transformer Capacity	0.0	KVA
Step–Up Transformer	0.0	LB
Step–Down Transformer Capacity	0.0	KVA
Step Down Transformer Weight	0.0	LB

ASSET EPGDS Method

FIGURE 28



Exceed
File
Run
Goto
Report
Help
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Feeder Configuration
Feeder Diagram
Feeder Analysis
Wire Type & Weight
Panel Technology Selection
Airplane Parameters
on
300000.
LB
2
Refused takeoff s
200.
KTS
Stage Noise
db delta
AP acoustic level
Max GW / Eng
150000.
LB
Max total thrust / Eng
54450.
LB
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
NM
ASSET Main Module

FIGURE 29

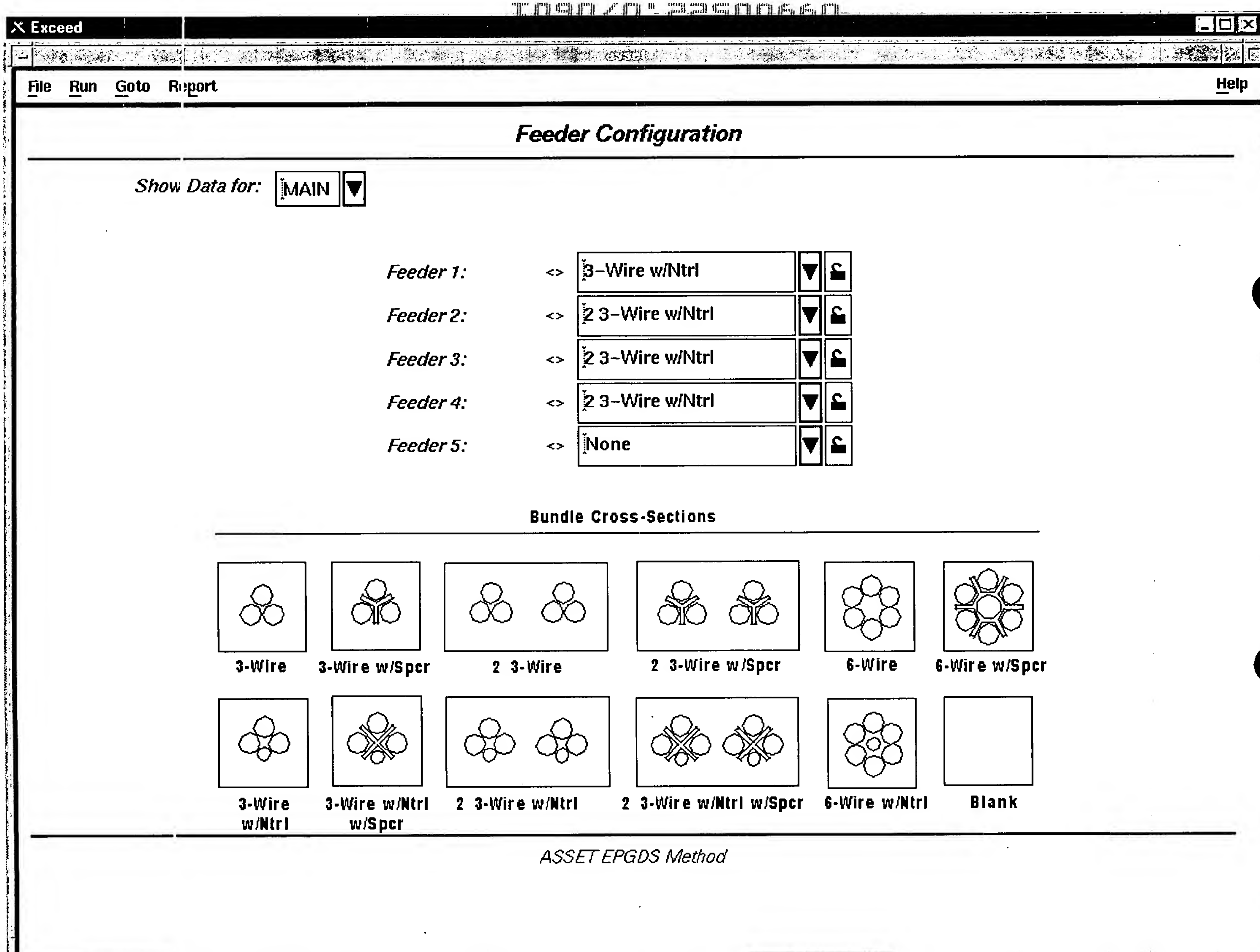

Exceed
File
Run
Goto
Report
Help
Feeder Configuration
Show Data for:
MAIN
Feeder 1:
3–Wire w/Ntrl
Feeder 2:
2 3–Wire w/Ntrl
Feeder 3:
2 3–Wire w/Ntrl
Feeder 4:
2 3–Wire w/Ntrl
Feeder 5:
None
Bundle Cross-Sections
3-Wire
3-Wire w/Spcr
2 3-Wire
2 3-Wire w/Spcr
6-Wire
6-Wire w/Spcr
3-Wire w/Ntrl
3-Wire w/Ntrl w/Spcr
2 3-Wire w/Ntrl
2 3-Wire w/Ntrl w/Spcr
6-Wire w/Ntrl
Blank
ASSET EPGDS Method

FIGURE 30

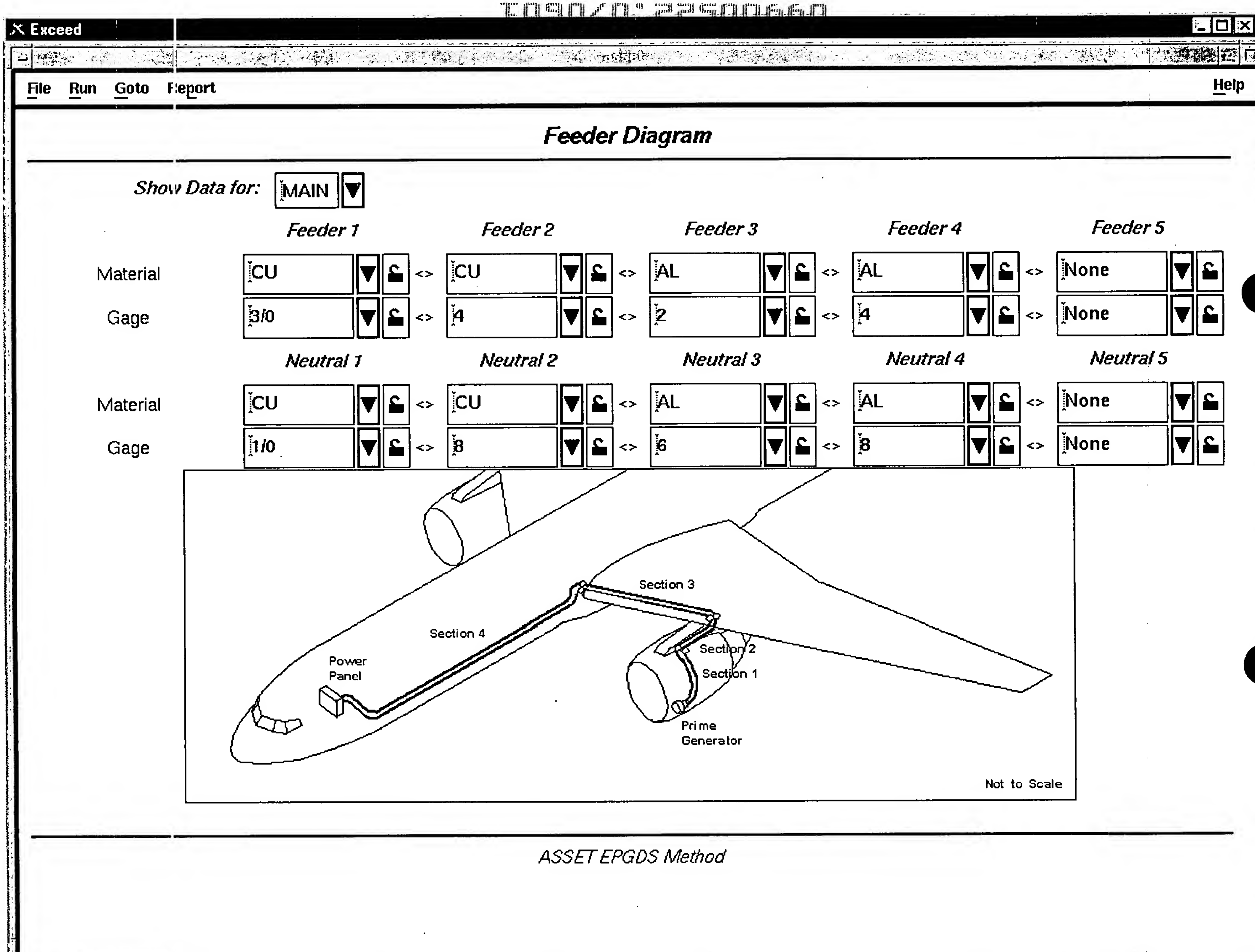

Exceed
File Run Goto Report
Help
Feeder Diagram
Show Data for: MAIN
Feeder 1
Feeder 2
Feeder 3
Feeder 4
Feeder 5
Material CU CU AL AL None
Gage 3/0 4 2 4 None
Neutral 1
Neutral 2
Neutral 3
Neutral 4
Neutral 5
Material CU CU AL AL None
Gage 1/0 8 6 8 None
Section 3
Section 4
Power Panel
Section 2
Section 1
Prime Generator
Not to Scale
ASSET EPGDS Method

FIGURE 31

Exceed

File Run Goto Report Help

Feeder Analysis

Show Data for: MAIN

	Feeder 1	Feeder 2	Feeder 3	Feeder 4	Feeder 5	
Phase Current	260.9	130.4	130.4	130.4	0.0	AMPS
Feeder Temperature Rise	49.7	59.2	61.6	84.6	0.0	DEG-C
Bundle Derating	1.000	1.000	1.000	1.000	1.000	
Sizing Altitude	41000	8000	8000	8000	8000	FT
Altitude Derating	1.757	1.112	1.112	1.112	1.112	
Ambient Temperature	149.0	93.0	93.0	57.0	57.0	DEG-C
Feeder Temperature	236.4	158.8	161.5	151.1	57.0	DEG-C
Max Wire Temperature	260.0	260.0	175.0	175.0	260.0	DEG-C
Temperature Margin	23.6	101.2	13.5	23.9	203.0	DEG-C
Feeder Length	6.84	14.38	26.33	38.40	0.00	FT

Maximum Voltage Drop	10.000	VOLTS
Total Voltage Drop	7.757	VOLTS
Voltage Drop Margin	2.243	VOLTS

ASSET EPGDS Method

FIGURE 32

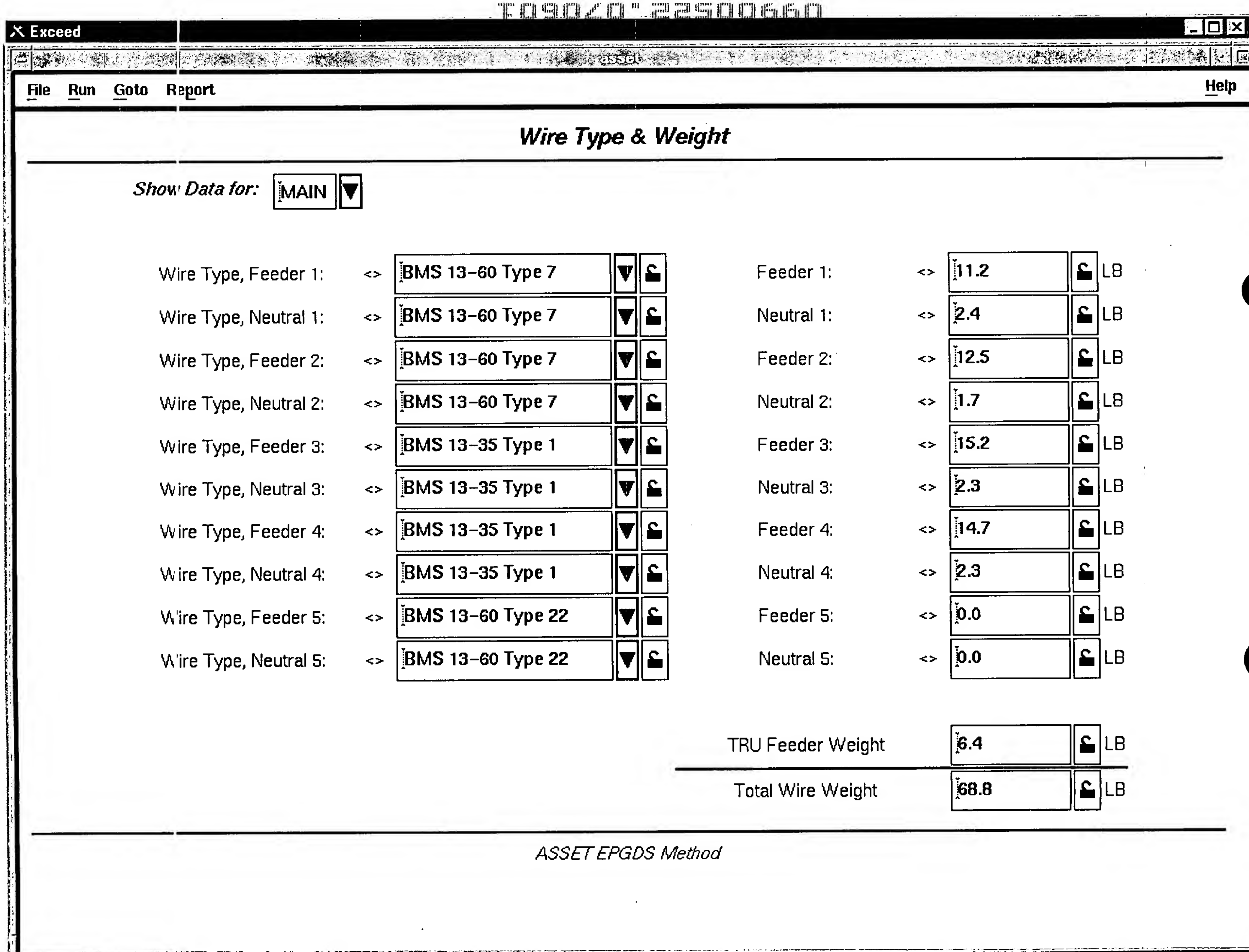
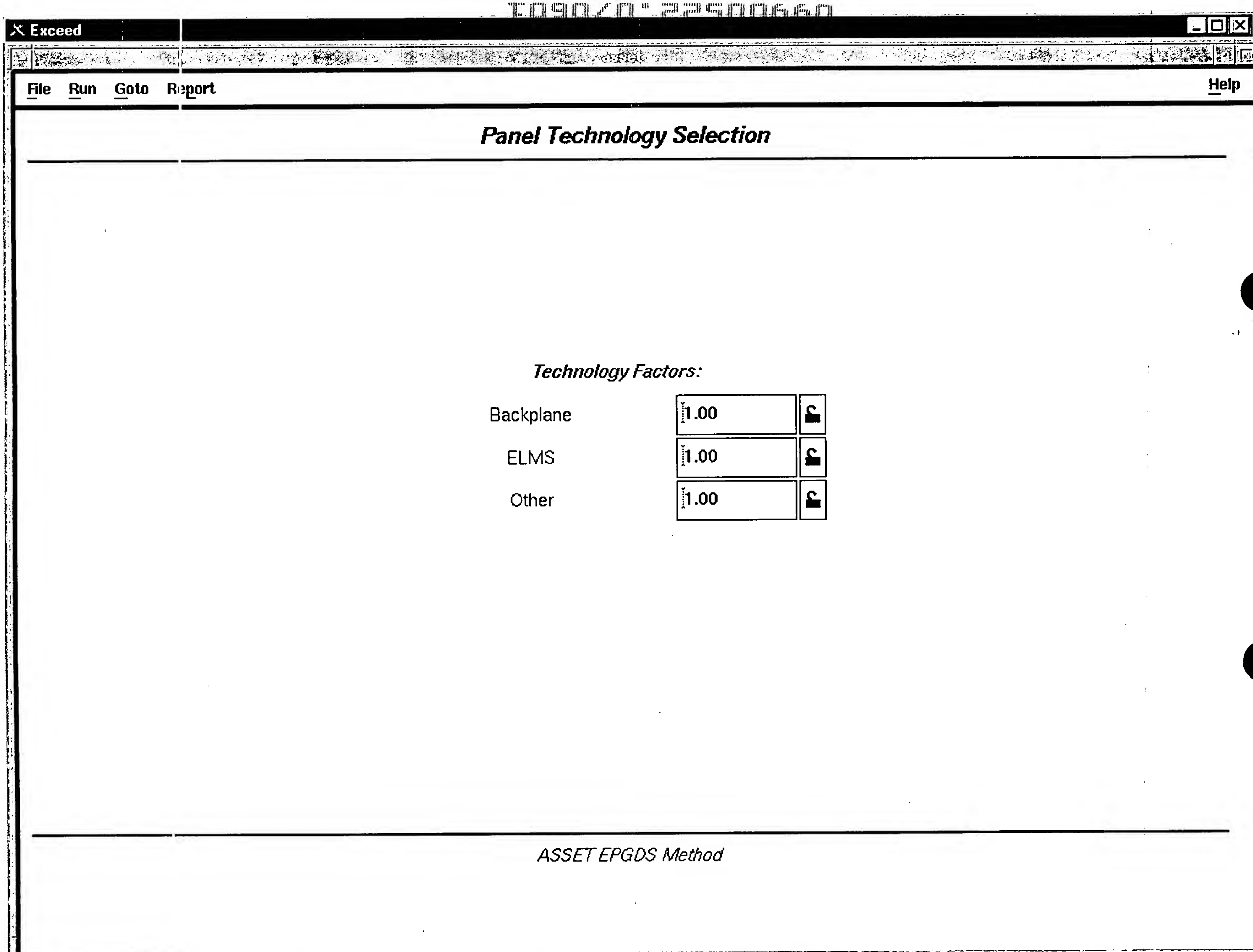
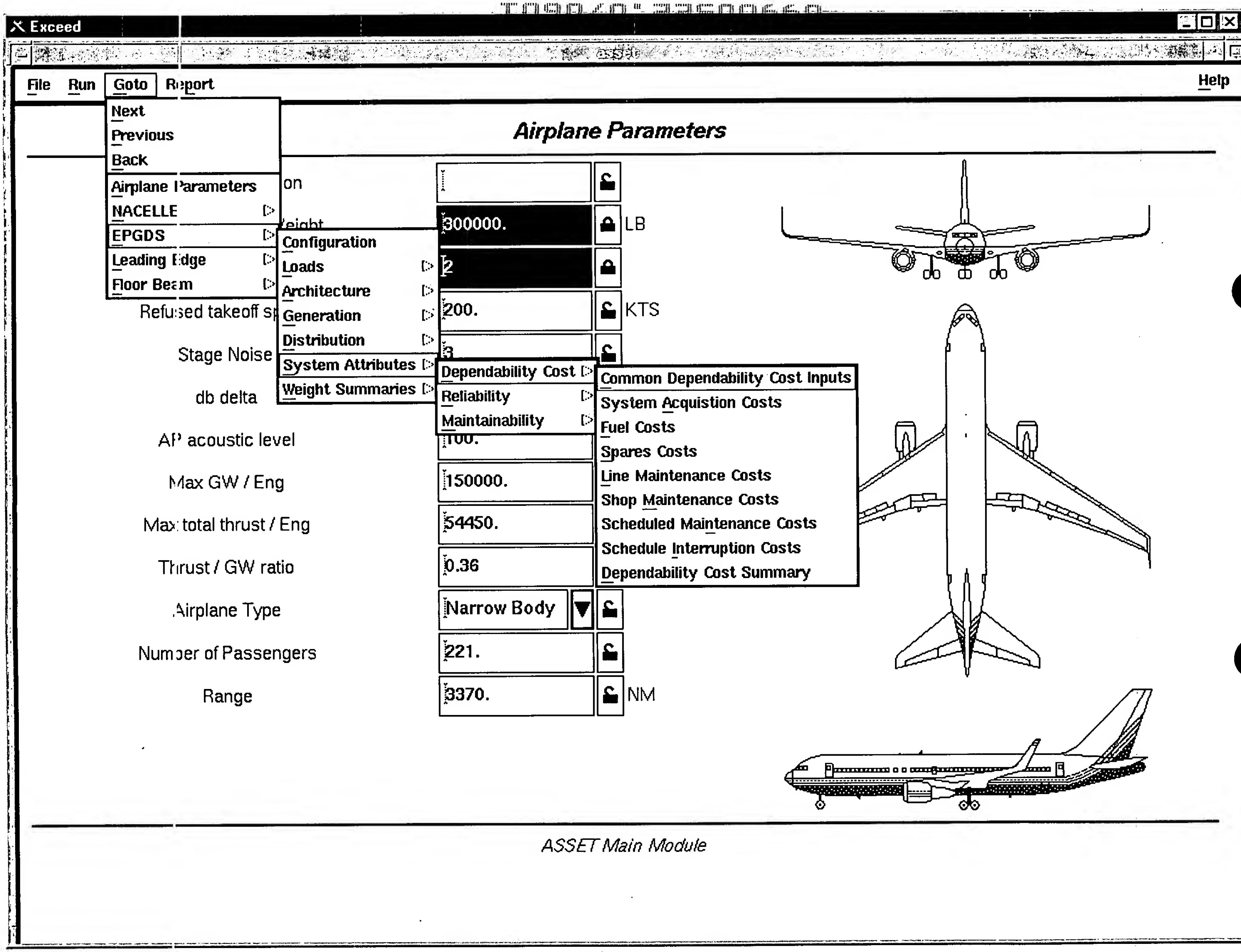

Exceed
File Run Goto Report
Help
Wire Type & Weight
Show Data for: MAIN
Wire Type, Feeder 1: <> BMS 13-60 Type 7
Wire Type, Neutral 1: <> BMS 13-60 Type 7
Wire Type, Feeder 2: <> BMS 13-60 Type 7
Wire Type, Neutral 2: <> BMS 13-60 Type 7
Wire Type, Feeder 3: <> BMS 13-35 Type 1
Wire Type, Neutral 3: <> BMS 13-35 Type 1
Wire Type, Feeder 4: <> BMS 13-35 Type 1
Wire Type, Neutral 4: <> BMS 13-35 Type 1
Wire Type, Feeder 5: <> BMS 13-60 Type 22
Wire Type, Neutral 5: <> BMS 13-60 Type 22
Feeder 1: <> 11.2 LB
Neutral 1: <> 2.4 LB
Feeder 2: <> 12.5 LB
Neutral 2: <> 1.7 LB
Feeder 3: <> 15.2 LB
Neutral 3: <> 2.3 LB
Feeder 4: <> 14.7 LB
Neutral 4: <> 2.3 LB
Feeder 5: <> 0.0 LB
Neutral 5: <> 0.0 LB
TRU Feeder Weight 6.4 LB
Total Wire Weight 68.8 LB
ASSET EPGDS Method

FIGURE 33



Exceed
File
Run
Goto
Report
Help
Panel Technology Selection
Technology Factors:
Backplane
1.00
ELMS
1.00
Other
1.00
ASSET EPGDS Method

FIGURE 34



Exceed
File Run Goto Report Help
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Dependability Cost
Reliability
Maintainability
Common Dependability Cost Inputs
System Acquistion Costs
Fuel Costs
Spares Costs
Line Maintenance Costs
Shop Maintenance Costs
Scheduled Maintenance Costs
Schedule Interruption Costs
Dependability Cost Summary
Airplane Parameters
on
Refused takeoff s
Stage Noise
db delta
AP acoustic level
Max GW / Eng
Max total thrust / Eng
Thrust / GW ratio
Airplane Type
Number of Passengers
Range
300000. LB
2
200. KTS
3
100.
150000.
54450.
0.36
Narrow Body
221.
3370. NM
ASSET Main Module

FIGURE 35

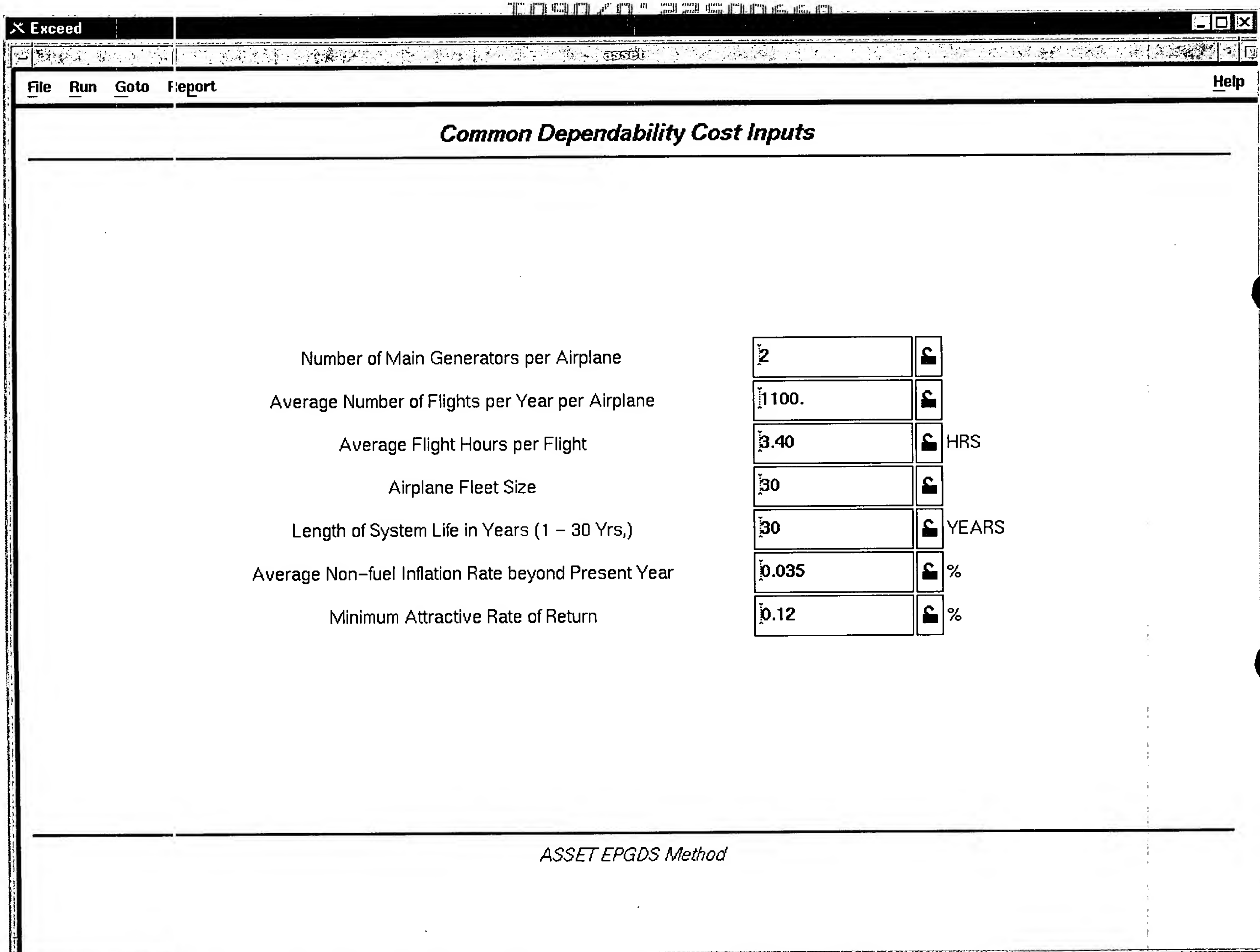

Exceed
asset
File Run Goto Report
Help
Common Dependability Cost Inputs
Number of Main Generators per Airplane
2
Average Number of Flights per Year per Airplane
1100.
Average Flight Hours per Flight
3.40
HRS
Airplane Fleet Size
30
Length of System Life in Years (1 – 30 Yrs,)
30
YEARS
Average Non–fuel Inflation Rate beyond Present Year
0.035
%
Minimum Attractive Rate of Return
0.12
%
ASSET EPGDS Method

FIGURE 36

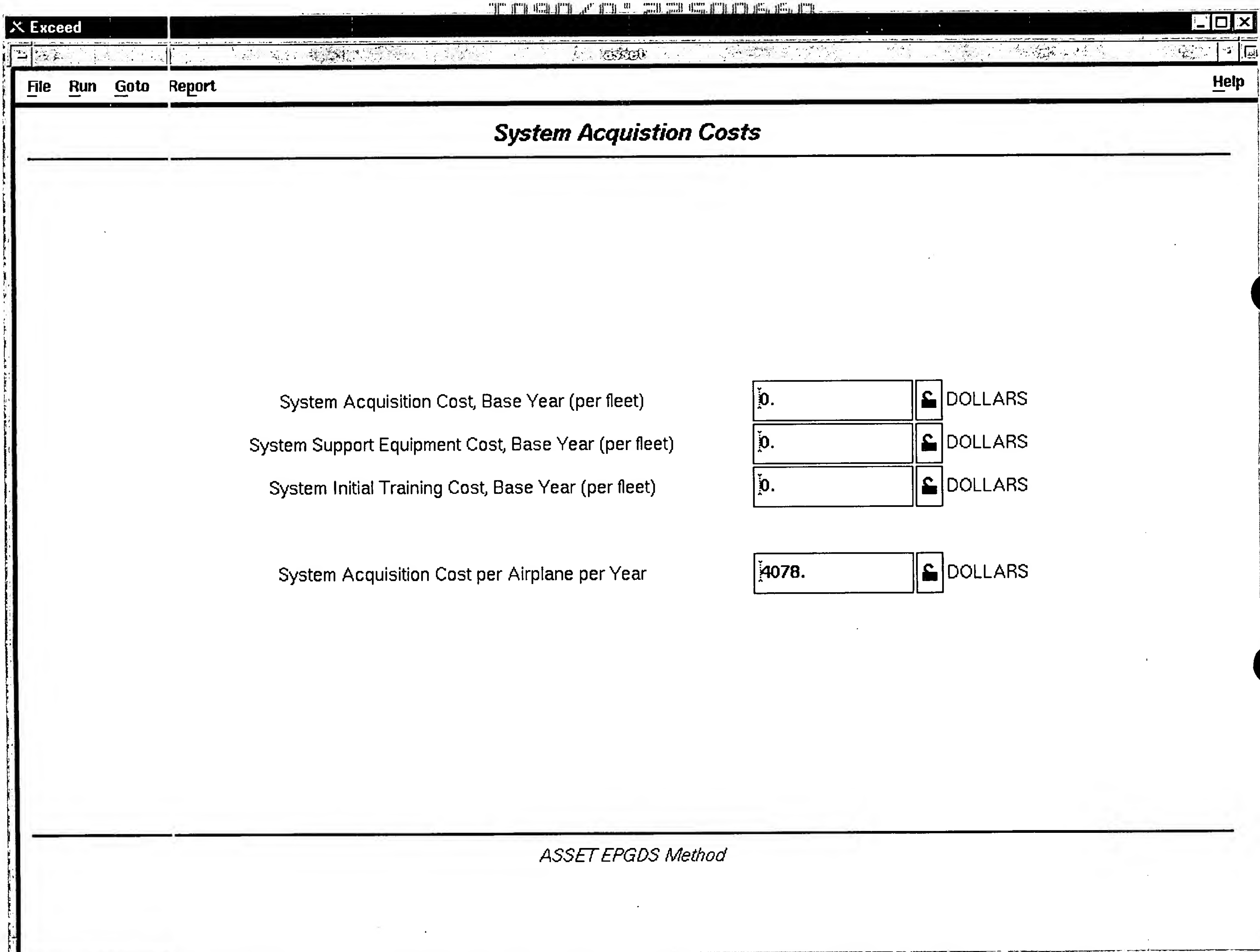

Exceed
asset
File Run Goto Report
Help
System Acquistion Costs
System Acquisition Cost, Base Year (per fleet)
0.
DOLLARS
System Support Equipment Cost, Base Year (per fleet)
0.
DOLLARS
System Initial Training Cost, Base Year (per fleet)
0.
DOLLARS
System Acquisition Cost per Airplane per Year
4078.
DOLLARS
ASSET EPGDS Method

FIGURE 37

Exceed

File Run Goto Report Help

Fuel Costs

Fuel Cost per Gallon, Base Year	0.49	DOLLARS
Lbs Fuel Burned / Flight Hour / Lb Additional Weight	0.0310	HRS^-1
System Weight (per airplane)	221.0	LB
System Direct Horsepower Requirement (per airplane)	0.	HP
System Drag Horsepower Requirement (per airplane)	0.	HP
System Cooling Horsepower Requirement	0.	HP
System Pound of Fuel per Block Trip (per airplane)	0.	LB
Average Fuel Inflation Rate Beyond Present Year	0.035	%
Fuel Cost (NPV of Life Cycle Cost)	615800.	DOLLARS
Fuel Cost per Airplane per Year	1860.	DOLLARS

ASSET EPGDS Method

FIGURE 38

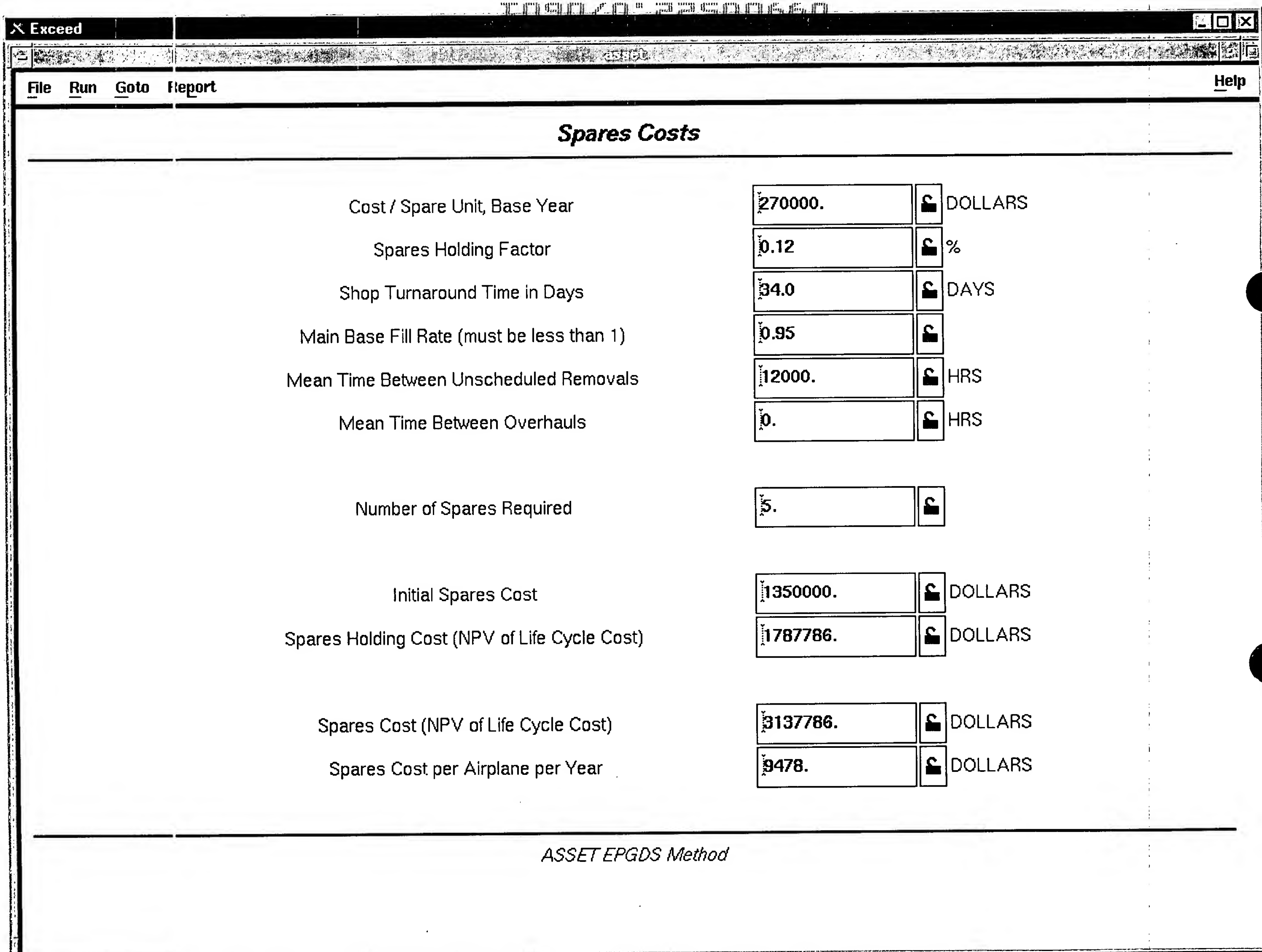

Exceed
File Run Goto Report
Help
Spares Costs
Cost / Spare Unit, Base Year
270000.
DOLLARS
Spares Holding Factor
0.12
%
Shop Turnaround Time in Days
34.0
DAYS
Main Base Fill Rate (must be less than 1)
0.95
Mean Time Between Unscheduled Removals
12000.
HRS
Mean Time Between Overhauls
0.
HRS
Number of Spares Required
5.
Initial Spares Cost
1350000.
DOLLARS
Spares Holding Cost (NPV of Life Cycle Cost)
1787786.
DOLLARS
Spares Cost (NPV of Life Cycle Cost)
3137786.
DOLLARS
Spares Cost per Airplane per Year
9478.
DOLLARS
ASSET EPGDS Method

FIGURE 39

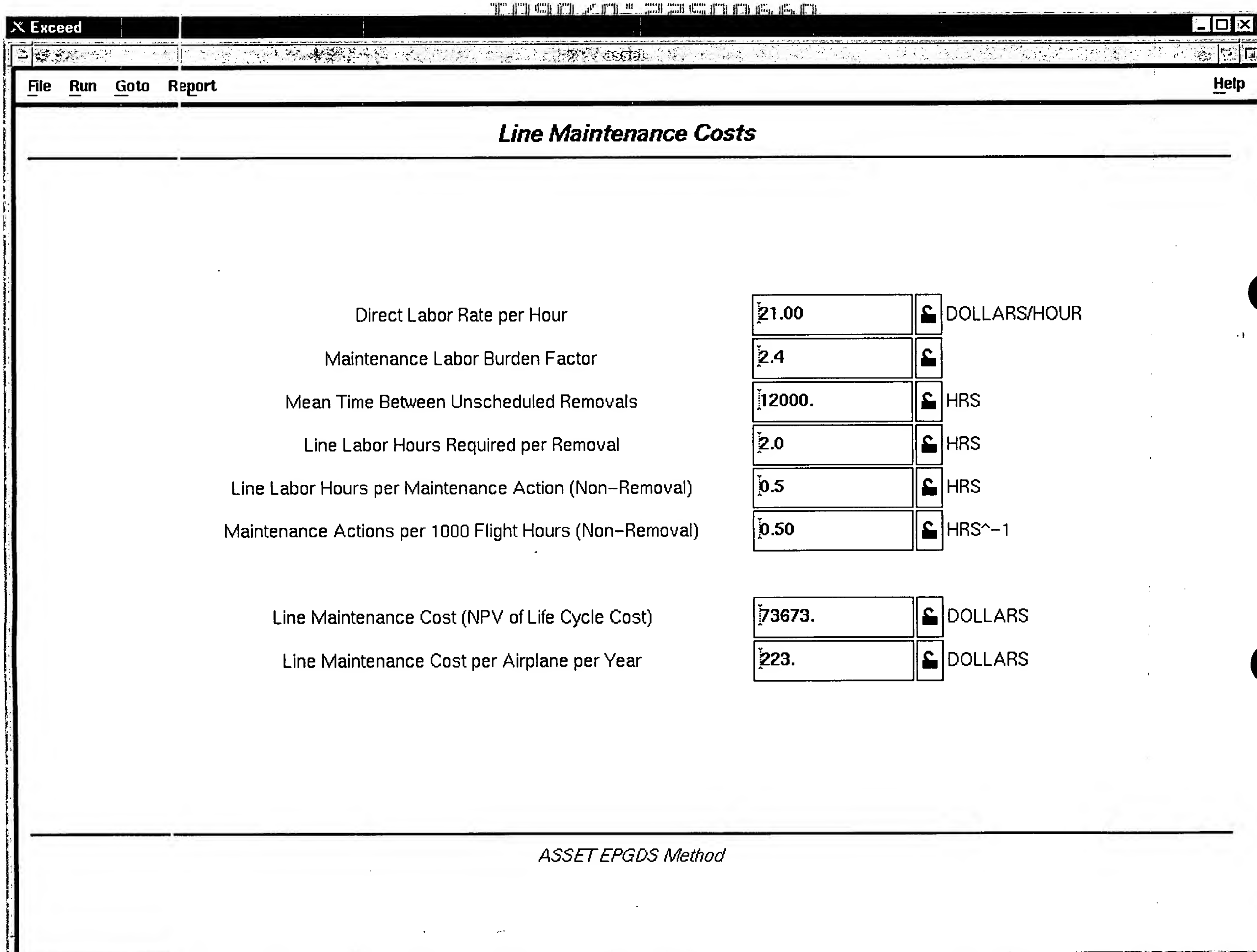

Exceed
File Run Goto Report Help
Line Maintenance Costs
Direct Labor Rate per Hour 21.00 DOLLARS/HOUR
Maintenance Labor Burden Factor 2.4
Mean Time Between Unscheduled Removals 12000. HRS
Line Labor Hours Required per Removal 2.0 HRS
Line Labor Hours per Maintenance Action (Non-Removal) 0.5 HRS
Maintenance Actions per 1000 Flight Hours (Non-Removal) 0.50 HRS^-1
Line Maintenance Cost (NPV of Life Cycle Cost) 73673. DOLLARS
Line Maintenance Cost per Airplane per Year 223. DOLLARS
ASSET EPGDS Method

FIGURE 40

Exceed

File Run Goto Report Help

Shop Maintenance Costs

Direct Labor Rate per Hour	21.00	DOLLARS/HOUR
Maintenance Labor Burden Factor	2.4	
Mean Time Between Unscheduled Removals	12000.	HRS
Main Generator Mean Time Between Failures	26000.	HRS
Mean Time Between Overhauls	0.	HRS
Shop Labor Man–Hours per Unconfirmed Failure (Test Time)	8.0	HRS
Shop Labor Man–Hours per Failure (Repair and Test)	48.0	HRS
Shop Labor Hours per Overhaul	0.0	HRS
Average Shop Material Cost per Failure, base year	67500.	DOLLARS
Overhaul Materials Cost per Overhaul	0.	DOLLARS
Shop Maintenance Cost (NPV of Life Cycle Cost)	6819057.	DOLLARS
Shop Maintenance Cost per Airplane per Year	20597.	DOLLARS

ASSET EPGDS Method

FIGURE 41

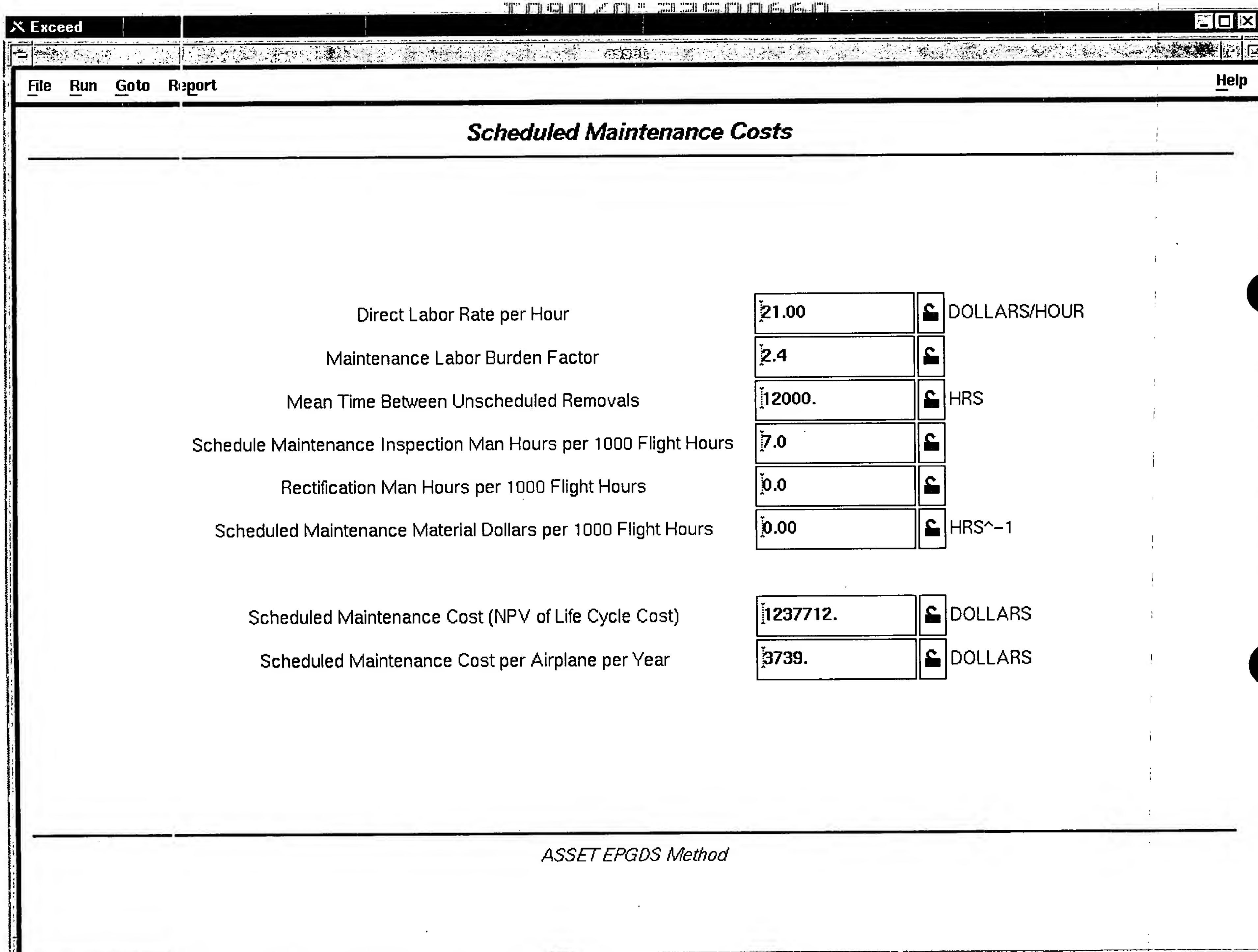

Exceed
File
Run
Goto
Report
Help
Scheduled Maintenance Costs
Direct Labor Rate per Hour
21.00
DOLLARS/HOUR
Maintenance Labor Burden Factor
2.4
Mean Time Between Unscheduled Removals
12000.
HRS
Schedule Maintenance Inspection Man Hours per 1000 Flight Hours
7.0
Rectification Man Hours per 1000 Flight Hours
0.0
Scheduled Maintenance Material Dollars per 1000 Flight Hours
0.00
HRS^-1
Scheduled Maintenance Cost (NPV of Life Cycle Cost)
1237712.
DOLLARS
Scheduled Maintenance Cost per Airplane per Year
3739.
DOLLARS
ASSET EPGDS Method

FIGURE 42

Exceed

File Run Goto Report Help

Schedule Interruption Costs

Average Delay Cost per Delay Hour	10300.	DOLLARS/HOUR
Average Cancellation Cost per Cancellation	51000.	
Average Air Turnback Cost per Turnback	36700.	DOLLARS
Average Diversion Cost per Diversion	43000.	DOLLARS
Number of Delays per 100 Departures	0.0030	
Average Delay Time (Hours)	1.70	HRS
Number of Cancellations per 100 Departures	0.0001	
Number of Air Turnbacks per 100 Departures	0.0002	
Number of Diversions per 100 Departures	0.0000	
Schedule Interruptions Cost (NPV of Life Cycle Cost)	493999.	DOLLARS
Schedule Interruptions Cost per Airplane per Year	1492.	DOLLARS

ASSET EPGDS Method

FIGURE 43

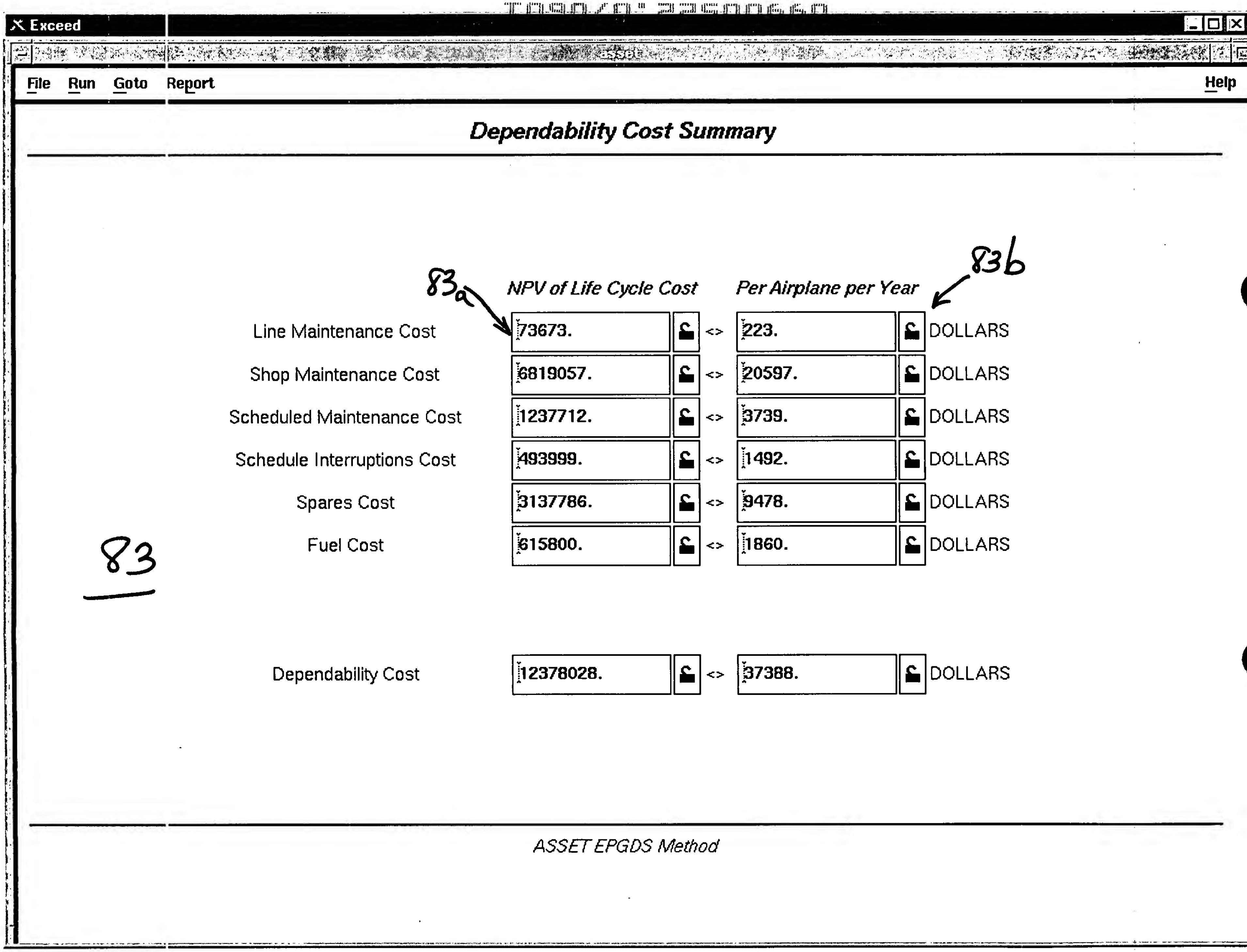

Exceed
asset
File
Run
Goto
Report
Help
Dependability Cost Summary
83a
NPV of Life Cycle Cost
Per Airplane per Year
83b
Line Maintenance Cost
73673.
<>
223.
DOLLARS
Shop Maintenance Cost
6819057.
<>
20597.
DOLLARS
Scheduled Maintenance Cost
1237712.
<>
3739.
DOLLARS
Schedule Interruptions Cost
493999.
<>
1492.
DOLLARS
Spares Cost
3137786.
<>
9478.
DOLLARS
Fuel Cost
615800.
<>
1860.
DOLLARS
83
Dependability Cost
12378028.
<>
37388.
DOLLARS
ASSET EPGDS Method

FIGURE 44

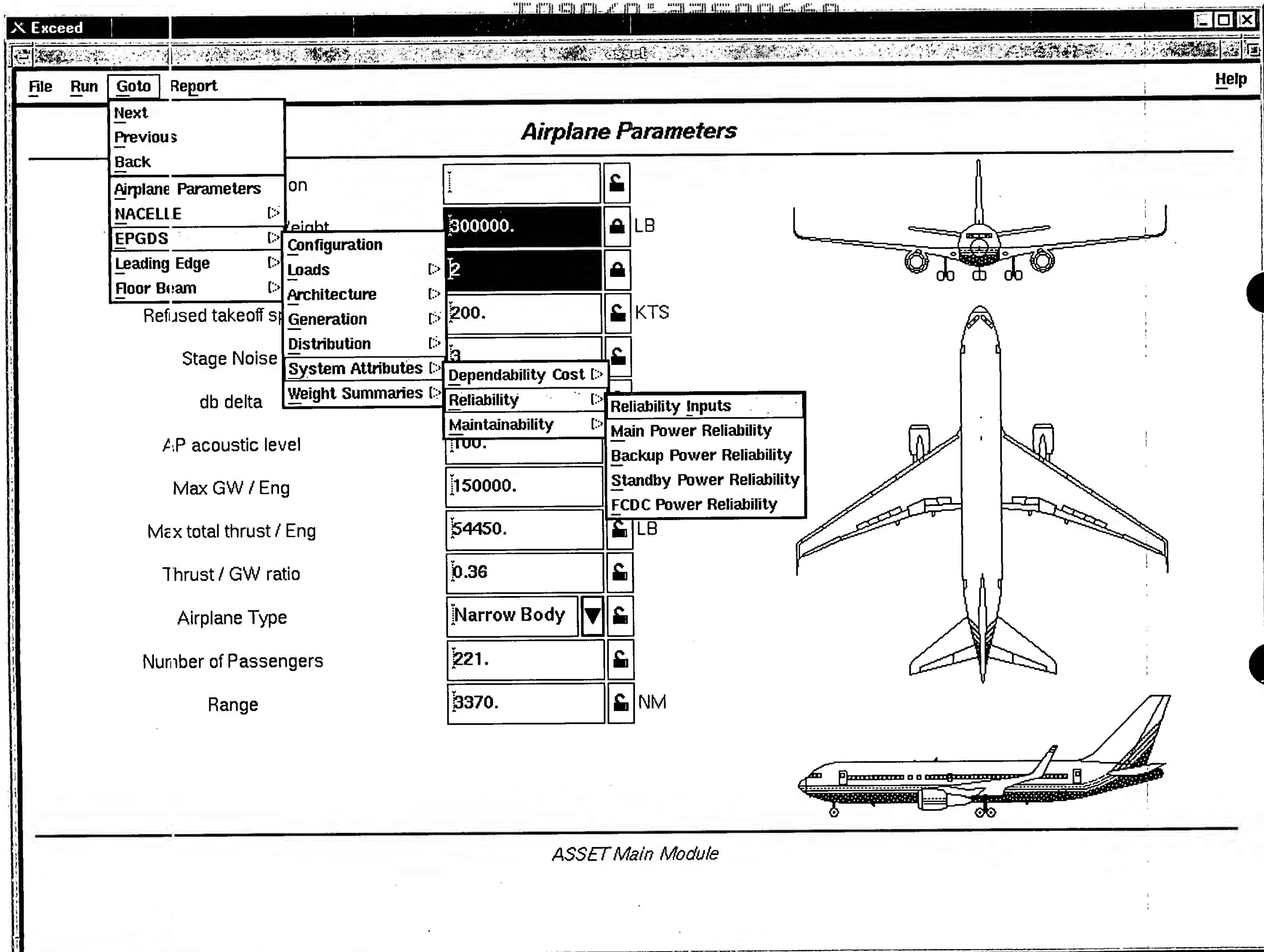

Exceed
File
Run
Goto
Report
Help
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Dependability Cost
Reliability
Maintainability
Reliability Inputs
Main Power Reliability
Backup Power Reliability
Standby Power Reliability
FCDC Power Reliability
Airplane Parameters
on
300000.
LB
2
Refused takeoff s
200.
KTS
Stage Noise
3
db delta
AP acoustic level
100.
Max GW / Eng
150000.
Max total thrust / Eng
54450.
LB
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
NM
ASSET Main Module

FIGURE 45

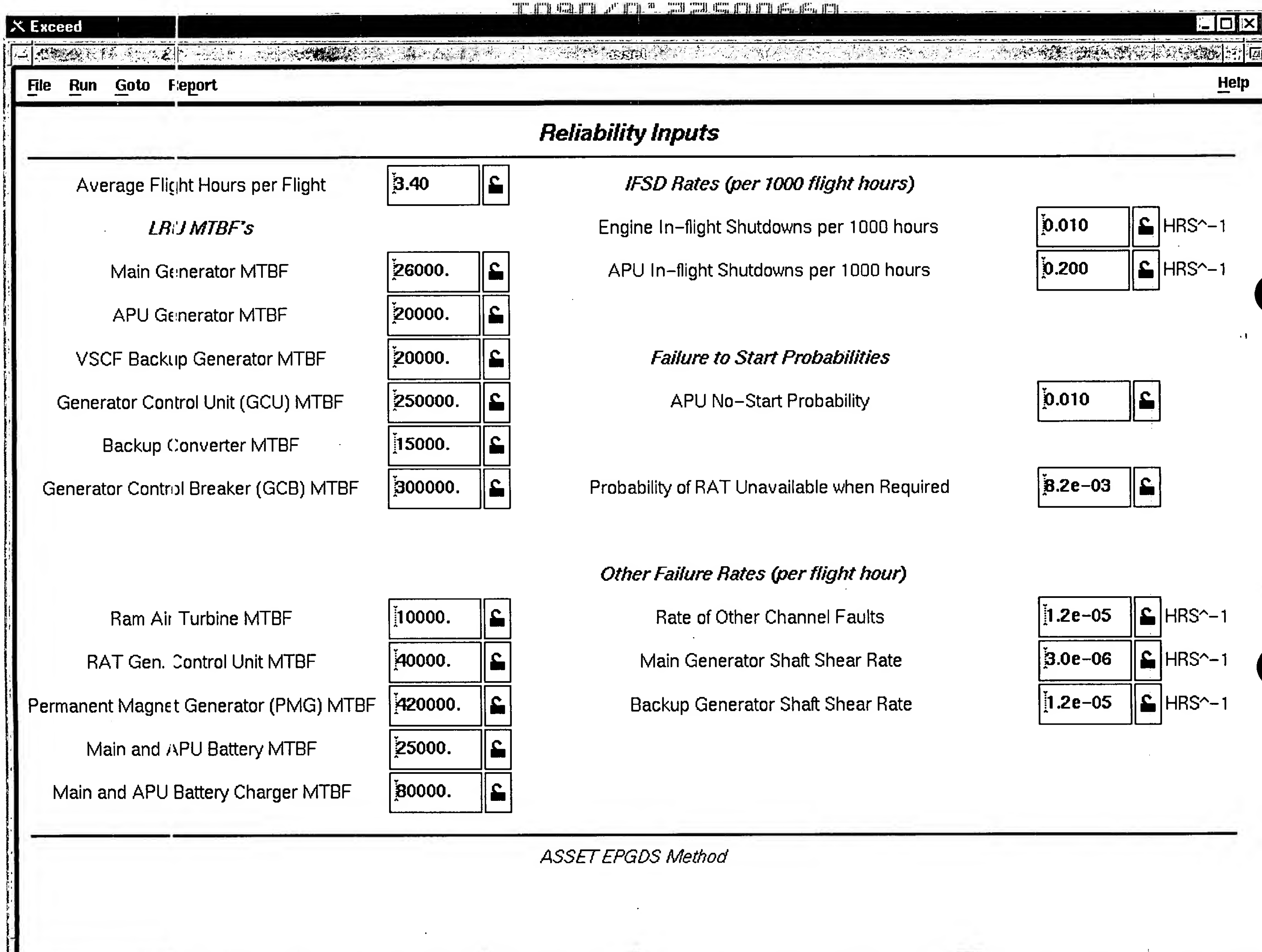

Exceed
File Run Goto Report
Help
Reliability Inputs
Average Flight Hours per Flight 3.40
LRU MTBF's
Main Generator MTBF 26000.
APU Generator MTBF 20000.
VSCF Backup Generator MTBF 20000.
Generator Control Unit (GCU) MTBF 250000.
Backup Converter MTBF 15000.
Generator Control Breaker (GCB) MTBF 300000.
Ram Air Turbine MTBF 10000.
RAT Gen. Control Unit MTBF 40000.
Permanent Magnet Generator (PMG) MTBF 420000.
Main and APU Battery MTBF 25000.
Main and APU Battery Charger MTBF 80000.
IFSD Rates (per 1000 flight hours)
Engine In-flight Shutdowns per 1000 hours 0.010 HRS^-1
APU In-flight Shutdowns per 1000 hours 0.200 HRS^-1
Failure to Start Probabilities
APU No-Start Probability 0.010
Probability of RAT Unavailable when Required 8.2e-03
Other Failure Rates (per flight hour)
Rate of Other Channel Faults 1.2e-05 HRS^-1
Main Generator Shaft Shear Rate 3.0e-06 HRS^-1
Backup Generator Shaft Shear Rate 1.2e-05 HRS^-1
ASSET EPGDS Method

FIGURE 46

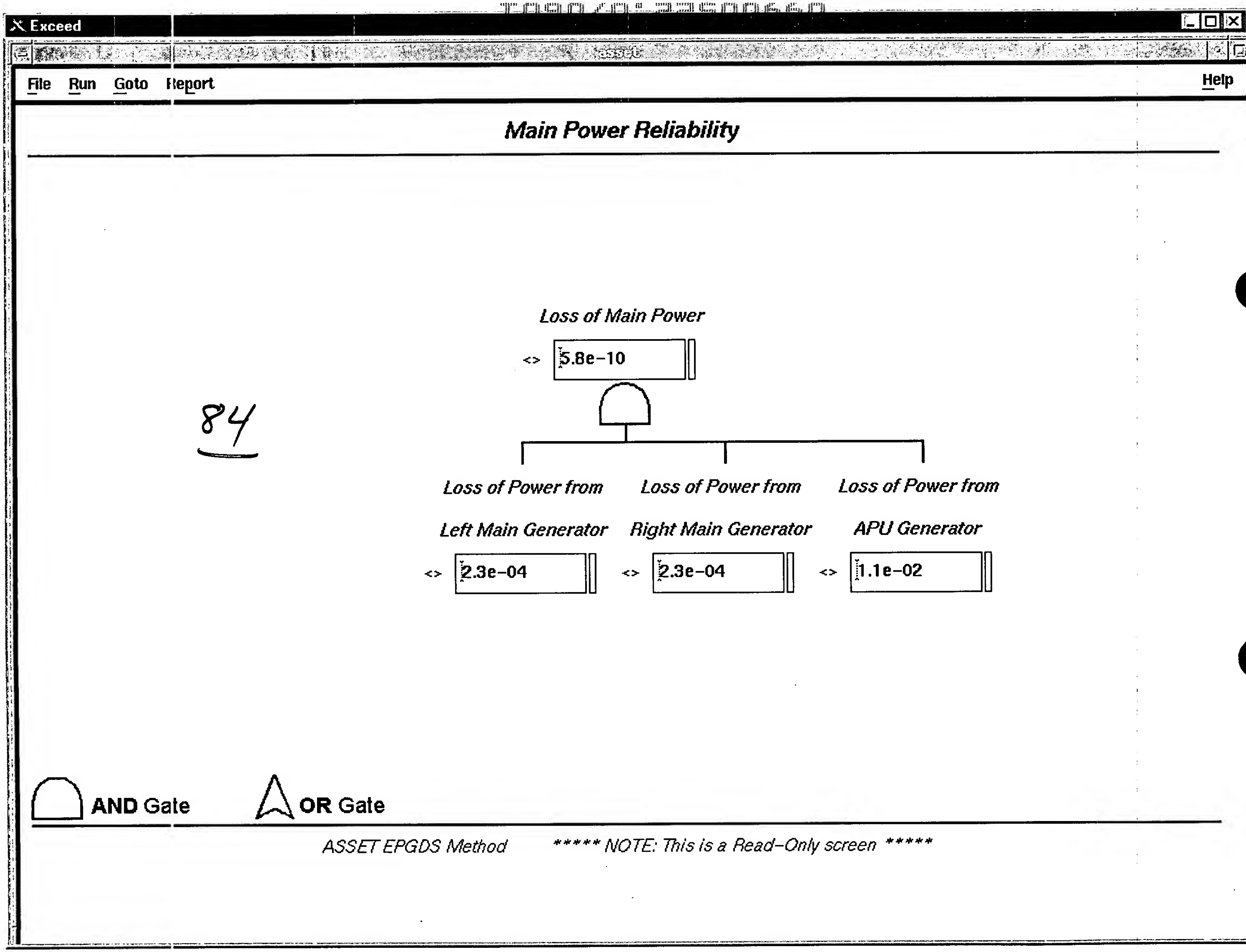

Exceed
File Run Goto Report
Help
Main Power Reliability
Loss of Main Power
5.8e-10
84
Loss of Power from
Left Main Generator
2.3e-04
Loss of Power from
Right Main Generator
2.3e-04
Loss of Power from
APU Generator
1.1e-02
AND Gate
OR Gate
ASSET EPGDS Method
***** NOTE: This is a Read-Only screen *****

FIGURE 47

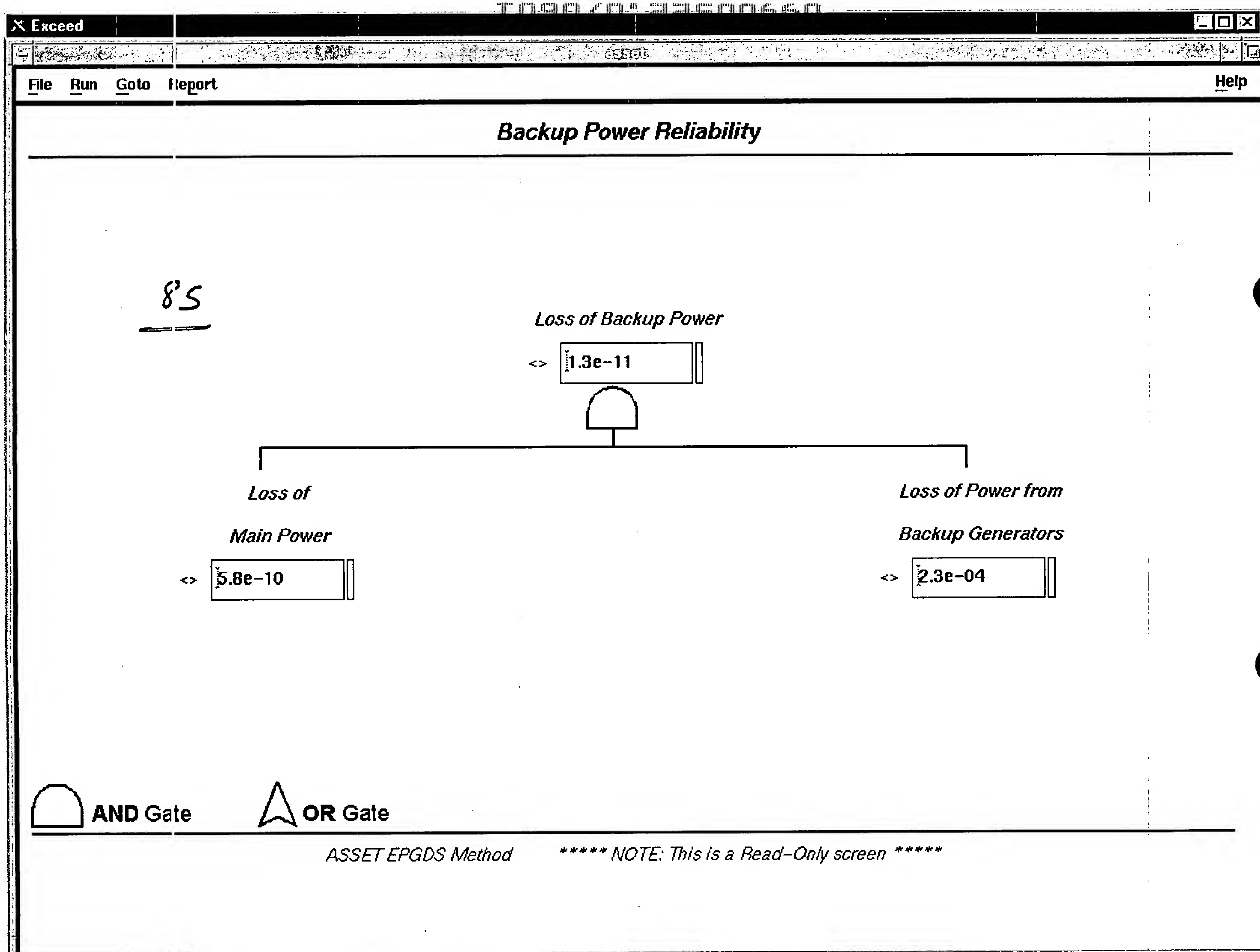

Exceed
asset
File
Run
Goto
Report
Help
Backup Power Reliability
8'S
Loss of Backup Power
<> 1.3e-11
Loss of
Main Power
<> 5.8e-10
Loss of Power from
Backup Generators
<> 2.3e-04
AND Gate
OR Gate
ASSET EPGDS Method
***** NOTE: This is a Read-Only screen *****

FIGURE 48

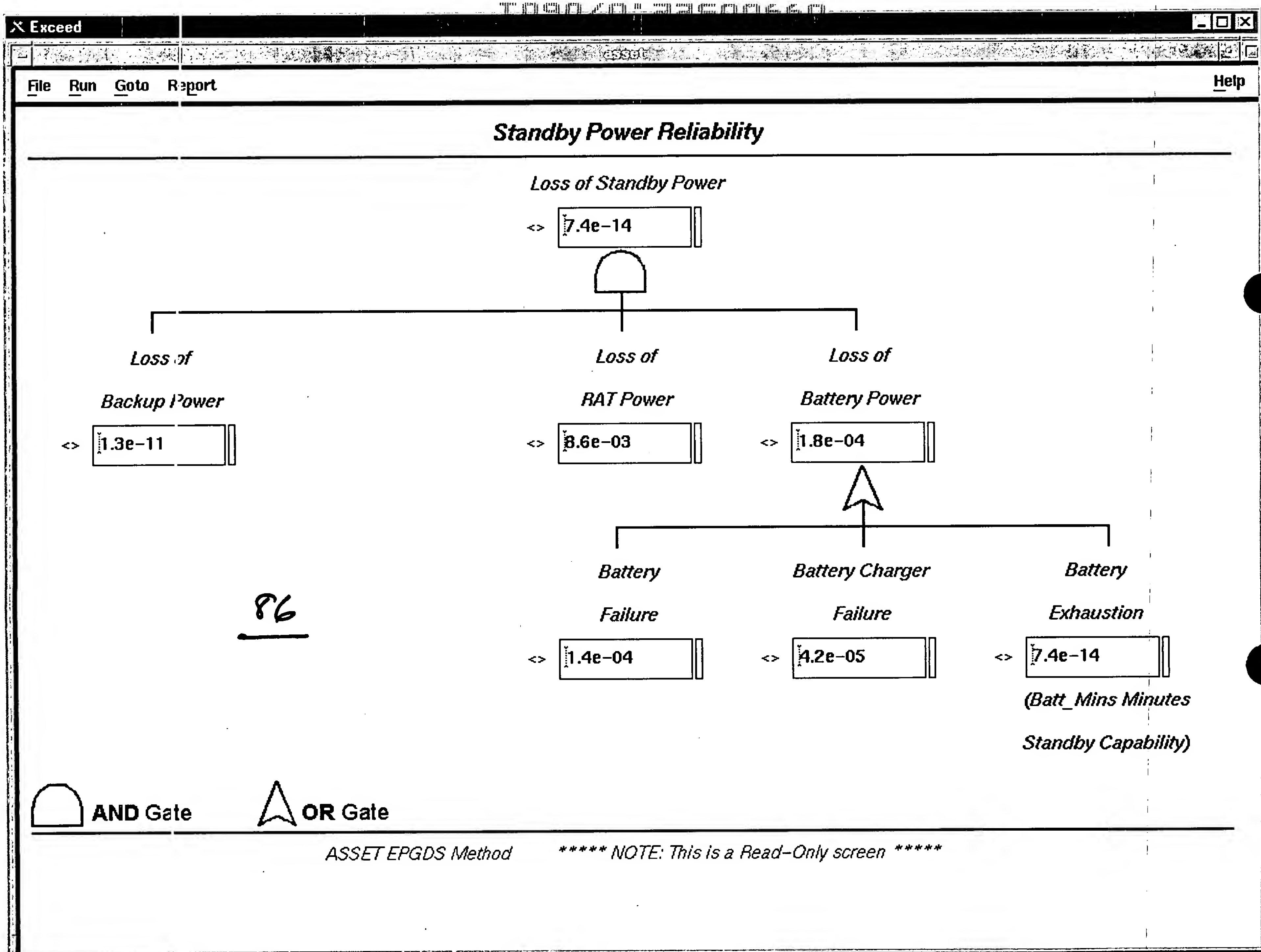

Exceed
File
Run
Goto
Report
Help
Standby Power Reliability
Loss of Standby Power
7.4e-14
Loss of Backup Power
1.3e-11
Loss of RAT Power
8.6e-03
Loss of Battery Power
1.8e-04
Battery Failure
1.4e-04
Battery Charger Failure
4.2e-05
Battery Exhaustion
7.4e-14
(Batt_Mins Minutes Standby Capability)
86
AND Gate
OR Gate
ASSET EPGDS Method
***** NOTE: This is a Read-Only screen *****

FIGURE 49

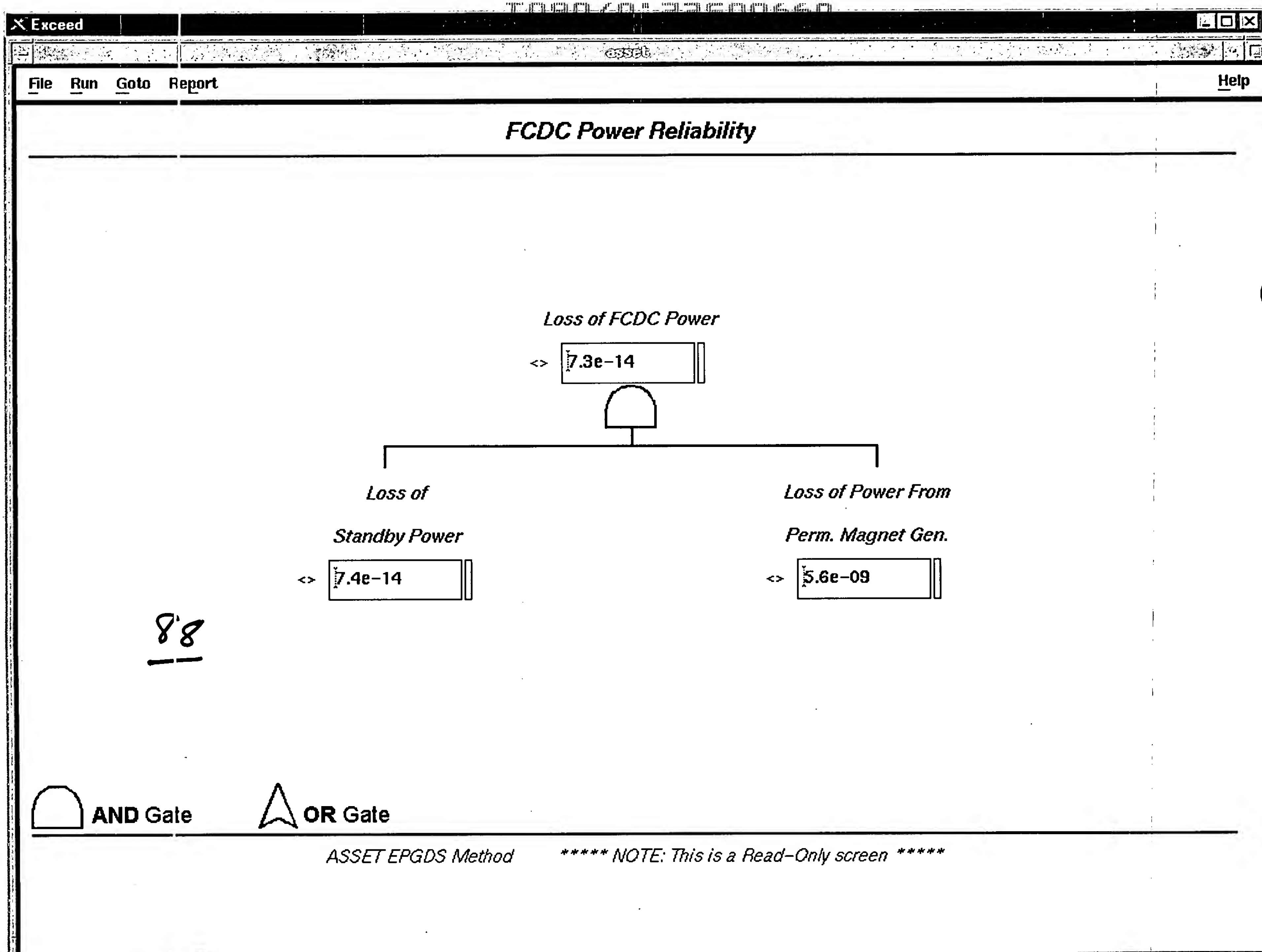
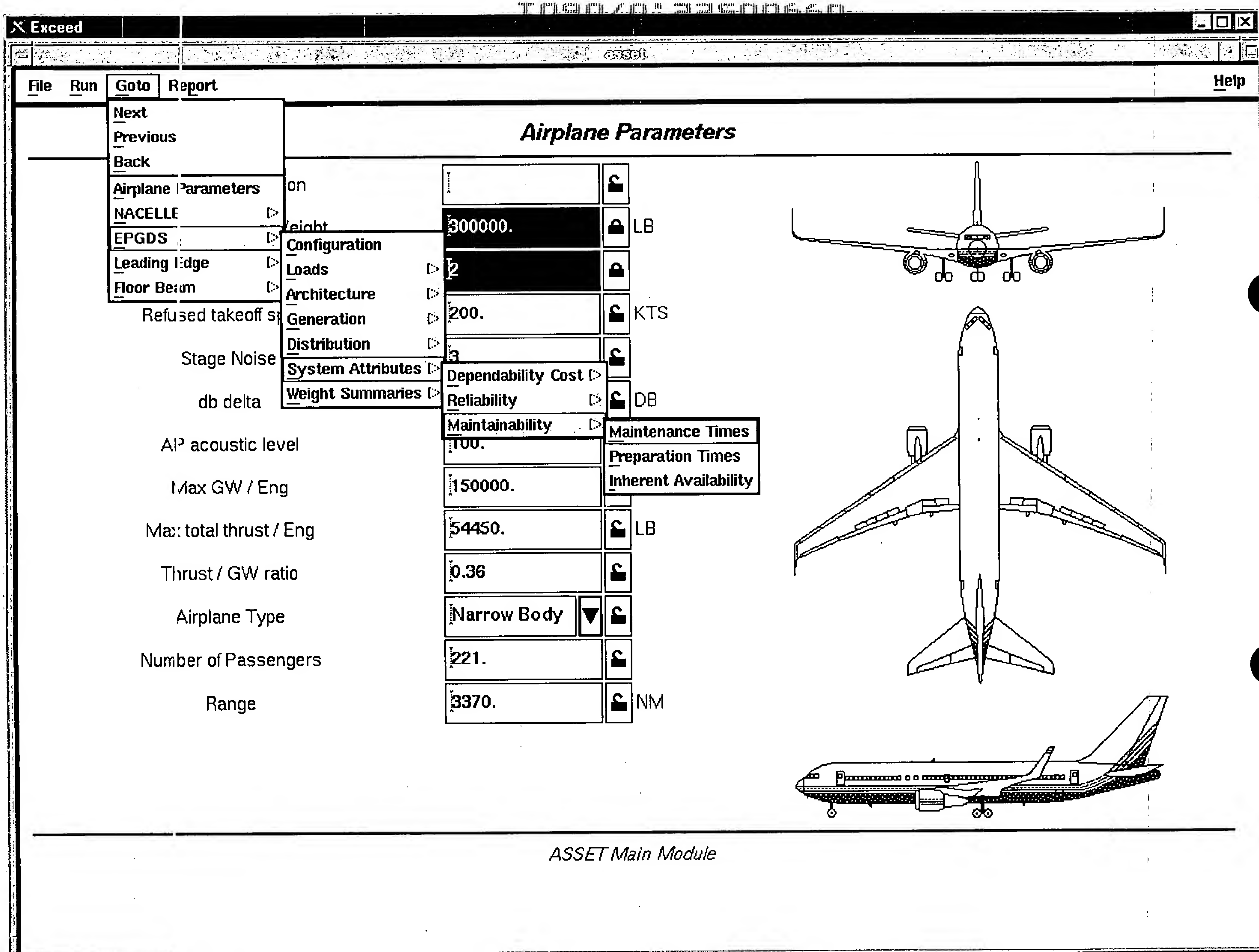

Exceed
asset
File Run Goto Report
Help
FCDC Power Reliability
Loss of FCDC Power
<> 7.3e-14
Loss of
Standby Power
<> 7.4e-14
Loss of Power From
Perm. Magnet Gen.
<> 5.6e-09
88
AND Gate
OR Gate
ASSET EPGDS Method
***** NOTE: This is a Read-Only screen *****

FIGURE 50



Exceed
asset
File
Run
Goto
Report
Help
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Dependability Cost
Reliability
Maintainability
Maintenance Times
Preparation Times
Inherent Availability
Airplane Parameters
300000.
LB
200.
KTS
DB
Refused takeoff s
Stage Noise
db delta
AP acoustic level
Max GW / Eng
150000.
Max total thrust / Eng
54450.
LB
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
NM
ASSET Main Module

FIGURE 51

Exceed

File Run Goto Report Help

Maintenance Times

	Unscheduled Removals	Servicing	Alignment & Adjustment
Frequency (Flight Hours)			
Mean Time Between Unscheduled Removals	12000.		
Maintenance Interval		<> 750.	<> 4000.
Maintenance Corrective Times(Flight Hours)			
Main Generator Unscheduled Removal Access Time	0.50	<> 0.50	<> 0.50
Main Generator Unscheduled Removal Fault Isolation Time	0.50		
Repair / Remove & Replace Time	2.00		
Main Generator Unscheduled Removal Servicing Time	1.00	<> 2.00	
Main Generator Unscheduled Removal Alignment & Adjustment Time	0.50		<> 0.60
Main Generator Unscheduled Removal Checkout / Verification Time	1.00		<> 1.00
Main Generator Unscheduled Removal Closing Up Time	0.60	<> 0.60	<> 0.60
Main Generator Unscheduled Removal Mean Corrective Time	6.	<> 3.	<> 3.

ASSET EPGDS Method

90

FIGURE 52

Exceed

File Run Goto Report Help

Preparation Times

Maintenance Preparation Times (Flight Hours)	Unscheduled Removals	Servicing	Alignment & Adjustment
Main Generator Unscheduled Removal Maintenance Coordination Time	0.10	<> 0.10	<> 0.10
Main Generator Unscheduled Removal Dispatch Delay Time	0.20		
Main Generator Unscheduled Removal Airplane Ferrying Time	1.00		
Main Generator Unscheduled Removal Supply Delay Time	0.	<> 0.10	
Main Generator Unscheduled Removal Spares & Equipment Issuing Time	0.50		<> 0.50
Main Generator Unscheduled Removal Transport Delay Time	0.60		
Main Generator Unscheduled Removal Maintenance Delay Time	0.70	<> 0.10	<> 0.10
Main Generator Unscheduled Removal Maintenance Preparation Time	4.	<> 0.30	<> 1.

ASSET EPGDS Method

92

FIGURE 53

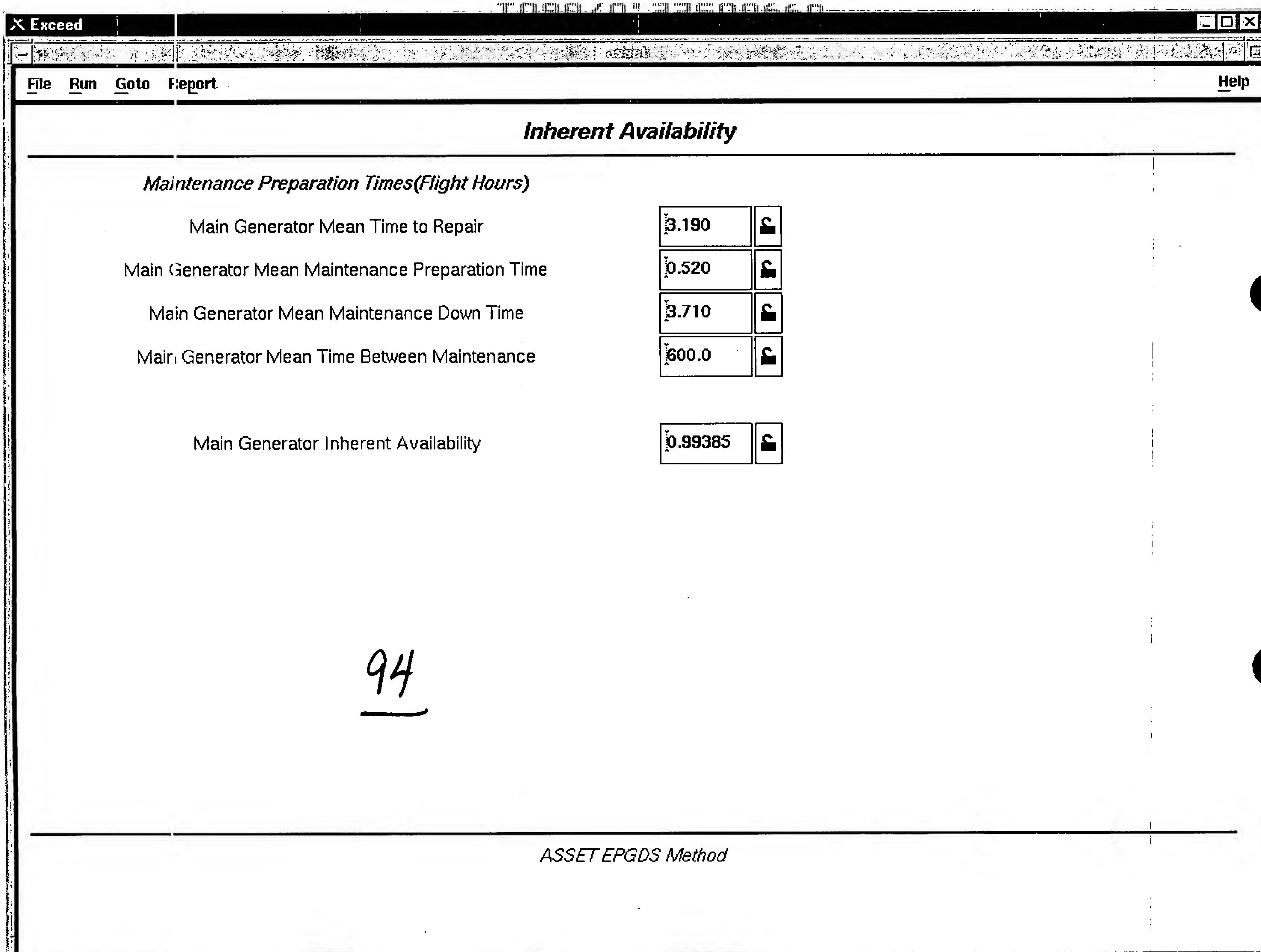

Exceed
File Run Goto Report
Help
Inherent Availability
Maintenance Preparation Times(Flight Hours)
Main Generator Mean Time to Repair
3.190
Main Generator Mean Maintenance Preparation Time
0.520
Main Generator Mean Maintenance Down Time
3.710
Main Generator Mean Time Between Maintenance
600.0
Main Generator Inherent Availability
0.99385
94
ASSET EPGDS Method

FIGURE 54

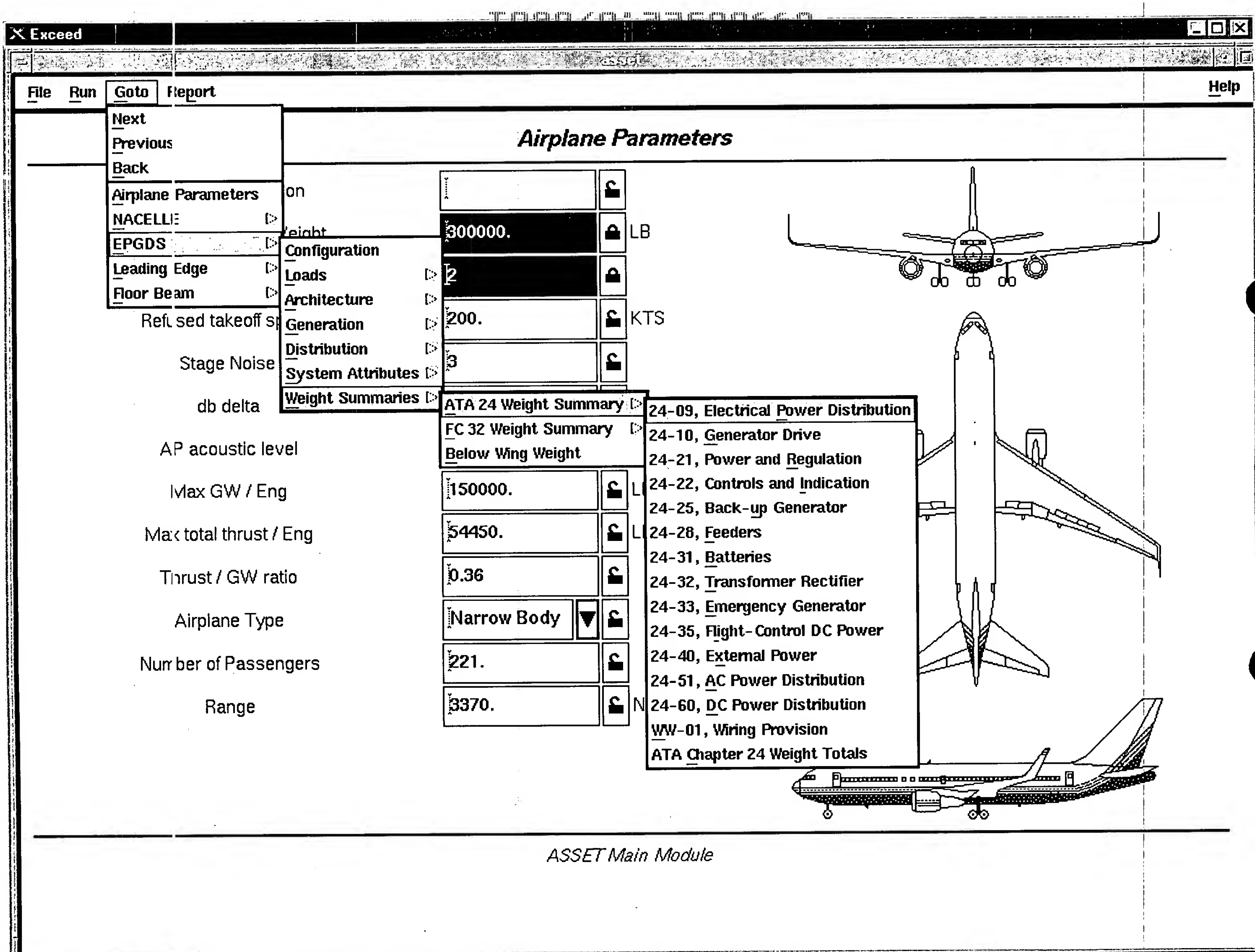

Exceed
File Run Goto Report
Help
Airplane Parameters
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
ATA 24 Weight Summary
FC 32 Weight Summary
Below Wing Weight
24-09, Electrical Power Distribution
24-10, Generator Drive
24-21, Power and Regulation
24-22, Controls and Indication
24-25, Back-up Generator
24-28, Feeders
24-31, Batteries
24-32, Transformer Rectifier
24-33, Emergency Generator
24-35, Flight-Control DC Power
24-40, External Power
24-51, AC Power Distribution
24-60, DC Power Distribution
WW-01, Wiring Provision
ATA Chapter 24 Weight Totals
on
300000.
LB
2
Refused takeoff s
200.
KTS
Stage Noise
3
db delta
AP acoustic level
Max GW / Eng
150000.
Max total thrust / Eng
54450.
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
ASSET Main Module

FIGURE 55

Exceed

File Run Goto Report Help

24-09, Electrical Power Distribution

Component #	Component Designation	Quantity	Unit Wt		Subtotal	
P100	Left Primary Power Panel	1	79.9	LB	79.9	LB
P110	Left Mgmt Power Panel	1	138.2	LB	138.2	LB
P200	Right Primary Power Panel	1	95.6	LB	95.6	LB
P210	Right Mgmt Power Panel	1	135.6	LB	135.6	LB
P300	Auxillary Power Panel	1	41.3	LB	41.3	LB
P310	Stby Power Mgmt Panel	1	131.7	LB	131.7	LB
P320	Ground Hdlg/Svs Distribution Panel	1	32.8	LB	32.8	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB

ATA 24-09, Electrical Power Distribution 655.1 LB

ASSET EPGDS Method

FIGURE 56

Exceed

File Run Goto Report Help

24-10, Generator Drive

Component #	Component Designation	Quantity	Unit Wt		Subtotal	
QAD	Quick Attach/Detach, L	1	5.7	LB	5.7	LB
QAD	Quick Attach/Detach, R	1	5.7	LB	5.7	LB
QAD APU	Quick Attach/Detach, APU	1	4.9	LB	4.9	LB
Heat XC	Generator Cooling, L	1	48.7	LB	48.7	LB
Heat XC	Generator Cooling, R	1	48.7	LB	48.7	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB

ATA 24-10, Generator Drive 113.6 LB

ASSET EPGDS Method

FIGURE 57

Exceed

File Run Goto Report Help

24-21, Power and Regulation

Component #	Component Designation	Quantity	Unit Wt		Subtotal	
M24001	Main Generator, INBD R	1	110.5	LB	110.5	LB
M24001	Main Generator, INBD L	1	110.5	LB	110.5	LB
		0	0.0	LB	0.0	LB
M24003	APU Generator	1	64.2	LB	64.2	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB

ATA 24-21, Power and Regulation 285.2 LB

ASSET EPGDS Method

FIGURE 58

Exceed

File Run Goto Report Help

24–22, Controls and Indication

Component #	Component Designation	Quantity	Unit Wt		Subtotal	
M24x05	Generator Control Unit, INBD R	1	5.0	LB	5.0	LB
M24x05	Generator Control Unit, INBD L	1	5.0	LB	5.0	LB
M24y05	APU Generator Control Unit	1	5.0	LB	5.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB

ATA 24–22, Controls and Indication 15.0 LB

ASSET EPGDS Method

FIGURE 59

Exceed

File Run Goto Report Help

24–25, Back-up Generator

Component #	Component Designation	Quantity	Unit Wt		Subtotal	
M24004	PMG Back-Up Generator, INBD R	1	5.0	LB	5.0	LB
M24004	PMG Back-Up Generator, INBD L	1	5.0	LB	5.0	LB
BU_Gen	VSCF Generator, INBD R	1	38.1	LB	38.1	LB
BU_Gen	VSCF Generator, INBD L	1	38.1	LB	38.1	LB
BU_Cvtr	VSCF Converter, INBD R	1	43.1	LB	43.1	LB
BU_Cvtr	VSCF Converter, INBD L	1	43.1	LB	43.1	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB

ATA 24–25, Back-up Generators 172.4 LB

ASSET EPGDS Method

FIGURE 60

Exceed

File Run Goto Report Help

24-28, Feeders

Component #	Component Designation	Quantity	Unit Wt	Subtotal
Gen_Fdrs	Main Generator Feeders, R	1	68.8 LB	68.8 LB
Gen_Fdrs	Main Generator Feeders, L	1	68.8 LB	68.8 LB
Gen_I	Main Generator Feeders Installation, R	1	12.4 LB	12.4 LB
Gen_I	Main Generator Feeders Installation, L	1	12.4 LB	12.4 LB
Gen_C	Main Generator Feeders Connectors, R	1	10.3 LB	10.3 LB
Gen_C	Main Generator Feeders Connectors, L	1	10.3 LB	10.3 LB
APU_Fdrs	APU Feeders	1	68.8 LB	68.8 LB
APU_C	APU Feeders Connectors	1	12.4 LB	12.4 LB
APU_I	APU Feeders Installation	1	10.3 LB	10.3 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB

ATA 24-28, Feeders 274.4 LB

ASSET EPGDS Method

FIGURE 61

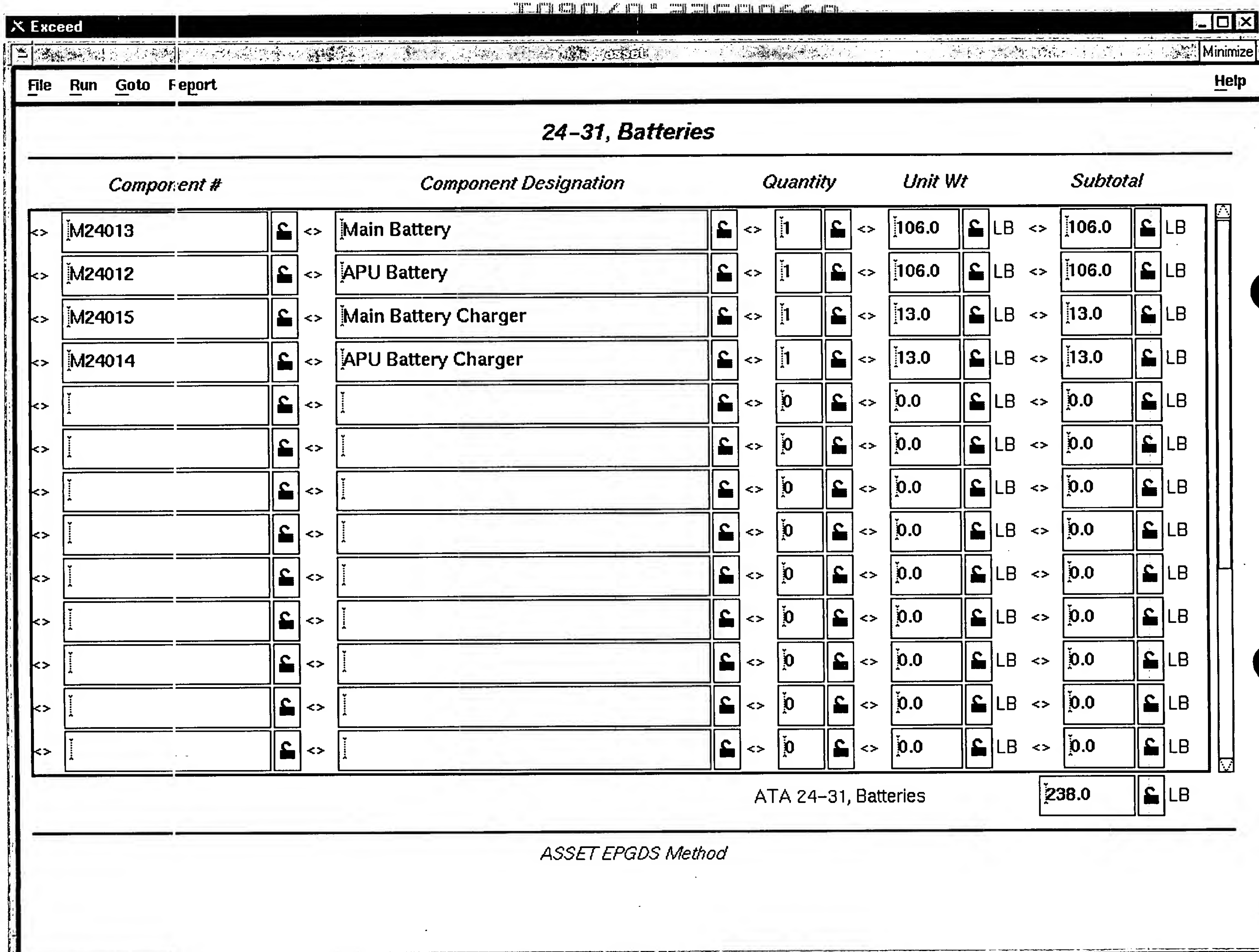

Exceed
Minimize
File Run Goto Report
Help
24-31, Batteries
Component #
Component Designation
Quantity
Unit Wt
Subtotal
M24013 Main Battery 1 106.0 LB 106.0 LB
M24012 APU Battery 1 106.0 LB 106.0 LB
M24015 Main Battery Charger 1 13.0 LB 13.0 LB
M24014 APU Battery Charger 1 13.0 LB 13.0 LB
0 0.0 LB 0.0 LB
0 0.0 LB 0.0 LB
0 0.0 LB 0.0 LB
0 0.0 LB 0.0 LB
0 0.0 LB 0.0 LB
0 0.0 LB 0.0 LB
0 0.0 LB 0.0 LB
0 0.0 LB 0.0 LB
0 0.0 LB 0.0 LB
ATA 24-31, Batteries 238.0 LB
ASSET EPGDS Method

FIGURE 62

Exceed

File Run Goto Report Help

24-32, Transformer Rectifier

Component #	Component Designation	Quantity	Unit Wt		Subtotal	
M24x03	Left/Right TRU	3	10.7	LB	32.2	LB
M2430x	Transformer Rectifier Unit (TRU) C1/2	3	10.7	LB	32.2	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB
		0	0.0	LB	0.0	LB

ATA 24-32, Transformer Rectifier 64.4 LB

ASSET EPGDS Method

FIGURE 63

Exceed

File Run Goto Report Help

24–33, Emergency Generator

Component #	Component Designation	Quantity	Unit Wt	Subtotal
M24016	Static Inverter Unit	1	41.6 LB	41.6 LB
M24017	RAT Generator	1	45.4 LB	45.4 LB
M24018	RAT Generator GCU	1	5.0 LB	5.0 LB
RAT_Fdrs	RAT Generator Feeders	1	7.5 LB	7.5 LB
RAT_I&C	RAT Gen Fdr Install & Conn	1	1.1 LB	1.1 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB

ATA 24–33, Emergency Generator 100.7 LB

ASSET EPGDS Method

FIGURE 64

Exceed

File Run Goto Report Help

24-35, Flight-Control DC Power

Component #	Component Designation	Quantity	Unit Wt	Subtotal
M24*01	Power Supply Unit (PSA)	3	35.0 LB	105.0 LB
FCDC Batt	FCDC Battery	3	14.3 LB	42.9 LB
Wire	Fly-by-Wire (FBW) Distribution Wire	1	33.2 LB	33.2 LB
Conn	Fly-by_Wire (FBW) Distribution Wire Con	1	5.0 LB	5.0 LB
Install	PSA Installation	1	20.7 LB	20.7 LB
TRU_Batt	L2 ACE TRU	1	5.0 LB	5.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB

ATA 24-35, Flight-Control DC Power 211.8 LB

ASSET EPGDS Method

FIGURE 65

Exceed

File Run Goto Report Help

24-40, External Power

Component #	Component Designation	Quantity	Unit Wt	Subtotal
P30	External Power Receptacle	3	4.7 LB	14.1 LB
P89	Ground Service and Handling Panel	1	12.6 LB	12.6 LB
M24002	Bus Power Control Unit	2	16.4 LB	32.8 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB

ATA 24-40, External Power 59.5 LB

ASSET EPGDS Method

FIGURE 66

Exceed

File Run Goto Report Help

24-51, AC Power Distribution

Component #	Component Designation	Quantity	Unit Wt	Subtotal
28 Xfmr	AC to DC Auto Transformer	2	5.0 LB	10.0 LB
Wire	AC Distribution Wire	1	83.5 LB	83.5 LB
Conn	AC Distribution Connectors	1	12.5 LB	12.5 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB

ATA 24-51, AC Power Distribution 106.0 LB

ASSET EPGDS Method

FIGURE 67

Exceed

File Run Goto Report Help

24-60, DC Power Distribution

Component #	Component Designation	Quantity	Unit Wt	Subtotal
GND TRU	Ground Handling TRU	1	5.0 LB	5.0 LB
P11	Overhead Panel	1	11.6 LB	11.6 LB
Wire	DC Distribution Wire	1	28.5 LB	28.5 LB
Conn	DC Distribution Connectors	1	4.3 LB	4.3 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB
		0	0.0 LB	0.0 LB

ATA 24-60, DC Power Distribution 49.4 LB

ASSET EPGDS Method

FIGURE 68

Exceed

File Run Goto Report Help

WW-01, Wiring Provision

Component #	Component Designation	Quantity	Unit Wt	Subtotal
Wire	Airframe Lighting (18%)	1	11. LB	10.8 LB
Installation	Engine/Strut Wiring Installation	1	81. LB	80.8 LB
Feeder Supports	Generator Feeders / Control Supts (18%)	1	12. LB	12.4 LB
AC Supports	AC Distribution Supts (18%)	1	17. LB	17.3 LB
DC Supports	DC Distribution Supts (18%)	1	7. LB	7.2 LB
FBW Supports	FBW Supports (18%)	1	12. LB	11.7 LB
APU Feeder Supports	APU Feeders / Controls Supts (18%)	1	12. LB	12.4 LB
		0	0. LB	0.0 LB
		0	0. LB	0.0 LB
		0	0. LB	0.0 LB
		0	0. LB	0.0 LB
		0	0. LB	0.0 LB
		0	0. LB	0.0 LB

WW-01, Wiring Provision 152.6 LB

ASSET EPGDS Method

FIGURE 69

Exceed

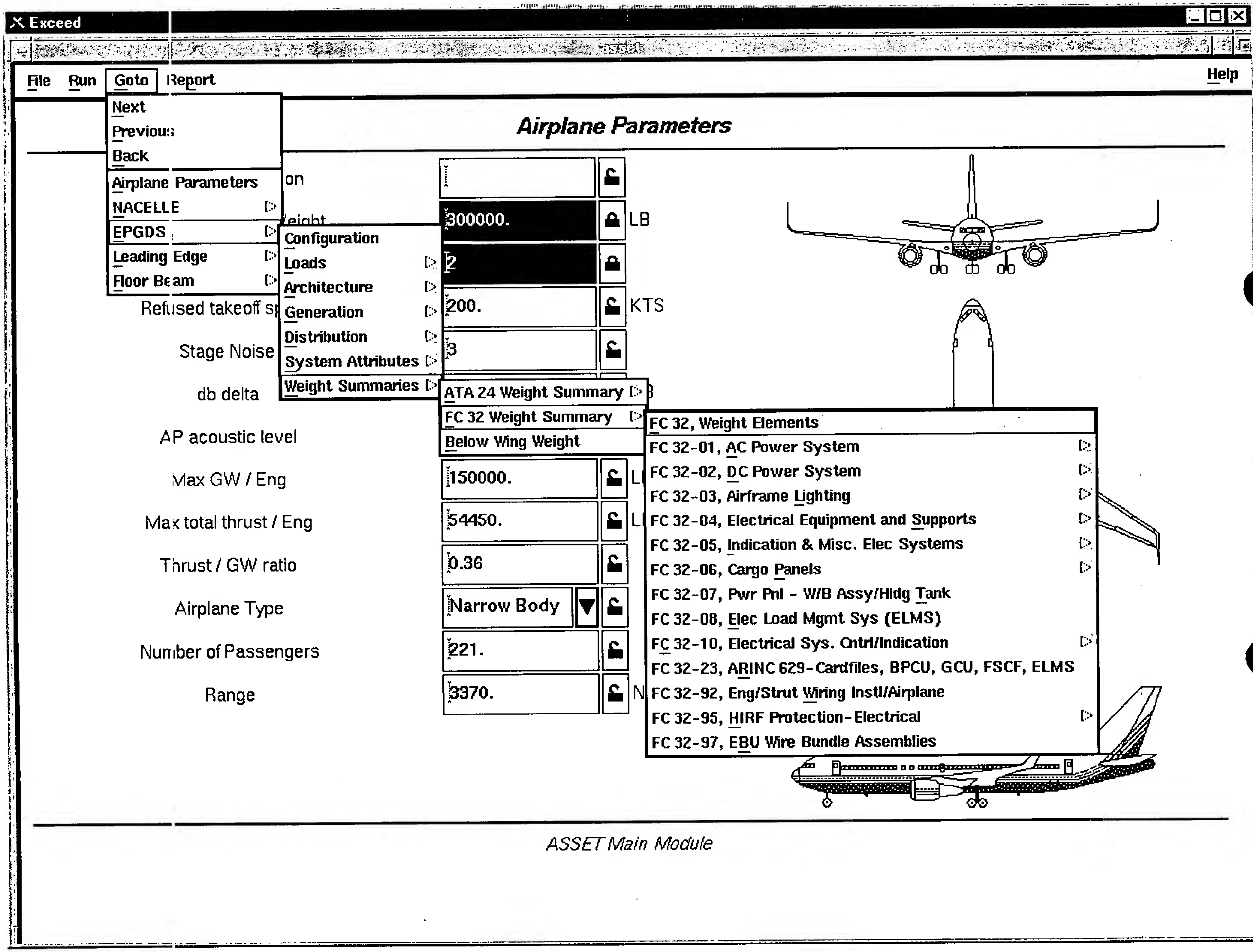
File Run Goto Report Help

ATA Chapter 24 Weight Totals

ATA 24-09, Electrical Power Distribution	655.1	LB
ATA 24-10, Generator Drive	113.6	LB
ATA 24-21, Power and Regulation	285.2	LB
ATA 24-22, Controls and Indication	15.0	LB
ATA 24-25, Back-up Generators	172.4	LB
ATA 24-28, Feeders	274.4	LB
ATA 24-31, Batteries	238.0	LB
ATA 24-32, Transformer Rectifier	64.4	LB
ATA 24-33, Emergency Generator	100.7	LB
ATA 24-35, Flight-Control DC Power	211.8	LB
ATA 24-40, External Power	59.5	LB
ATA 24-51, AC Power Distribution	106.0	LB
ATA 24-60, DC Power Distribution	49.4	LB
WW-01, Wiring Provision	152.6	LB
Electrical Power Generation & Distribution System	2498.0	LB

ASSET EPGDS Method

FIGURE 70



Exceed
File
Run
Goto
Report
Help
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
ATA 24 Weight Summary
FC 32 Weight Summary
Below Wing Weight
FC 32, Weight Elements
FC 32-01, AC Power System
FC 32-02, DC Power System
FC 32-03, Airframe Lighting
FC 32-04, Electrical Equipment and Supports
FC 32-05, Indication & Misc. Elec Systems
FC 32-06, Cargo Panels
FC 32-07, Pwr Pnl - W/B Assy/Hldg Tank
FC 32-08, Elec Load Mgmt Sys (ELMS)
FC 32-10, Electrical Sys. Cntrl/Indication
FC 32-23, ARINC 629-Cardfiles, BPCU, GCU, FSCF, ELMS
FC 32-92, Eng/Strut Wiring Instl/Airplane
FC 32-95, HIRF Protection-Electrical
FC 32-97, EBU Wire Bundle Assemblies
Airplane Parameters
on
300000.
LB
2
Refused takeoff s
200.
KTS
Stage Noise
3
db delta
AP acoustic level
Max GW / Eng
150000.
Max total thrust / Eng
54450.
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
ASSET Main Module

FIGURE 71

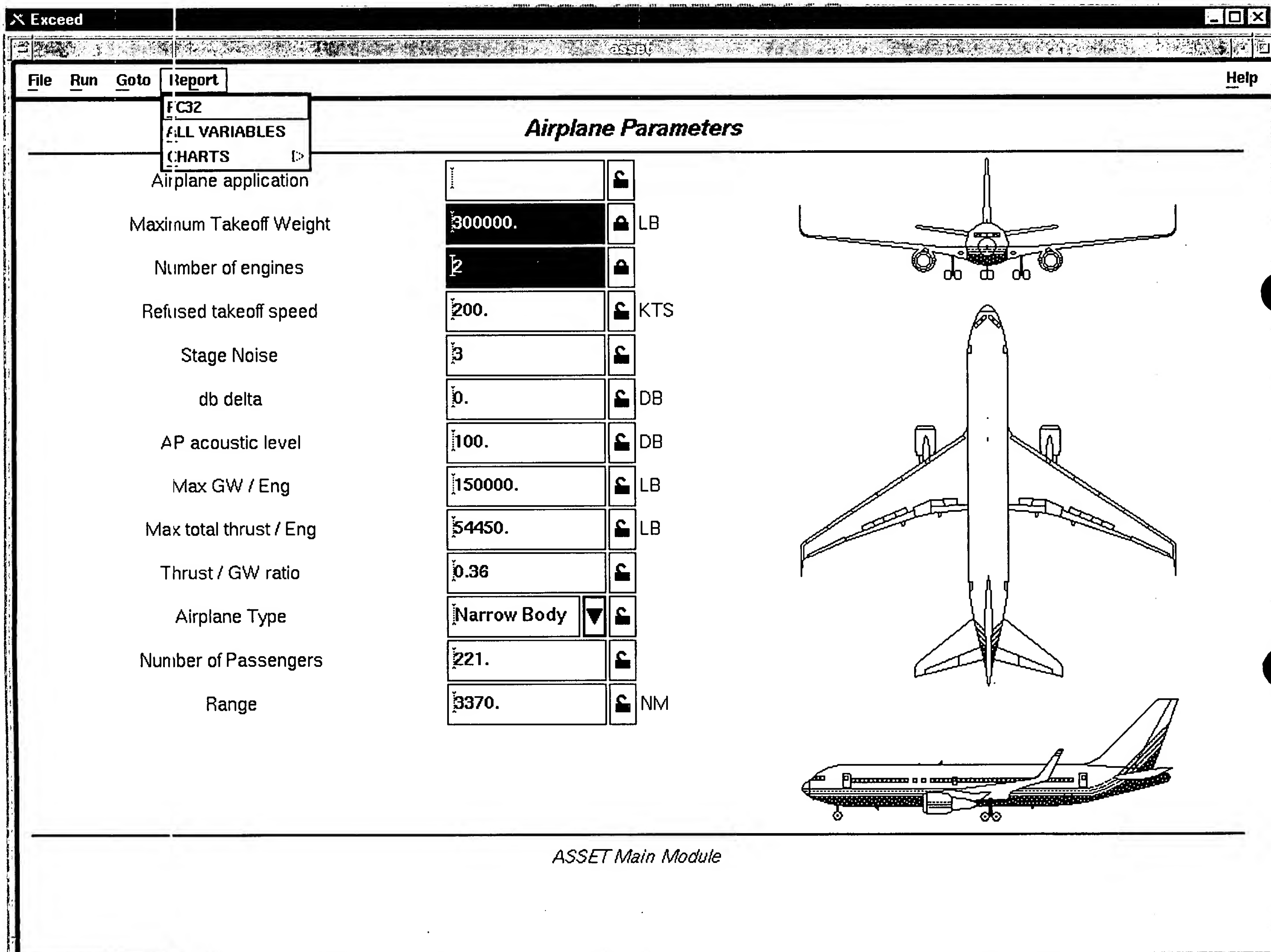
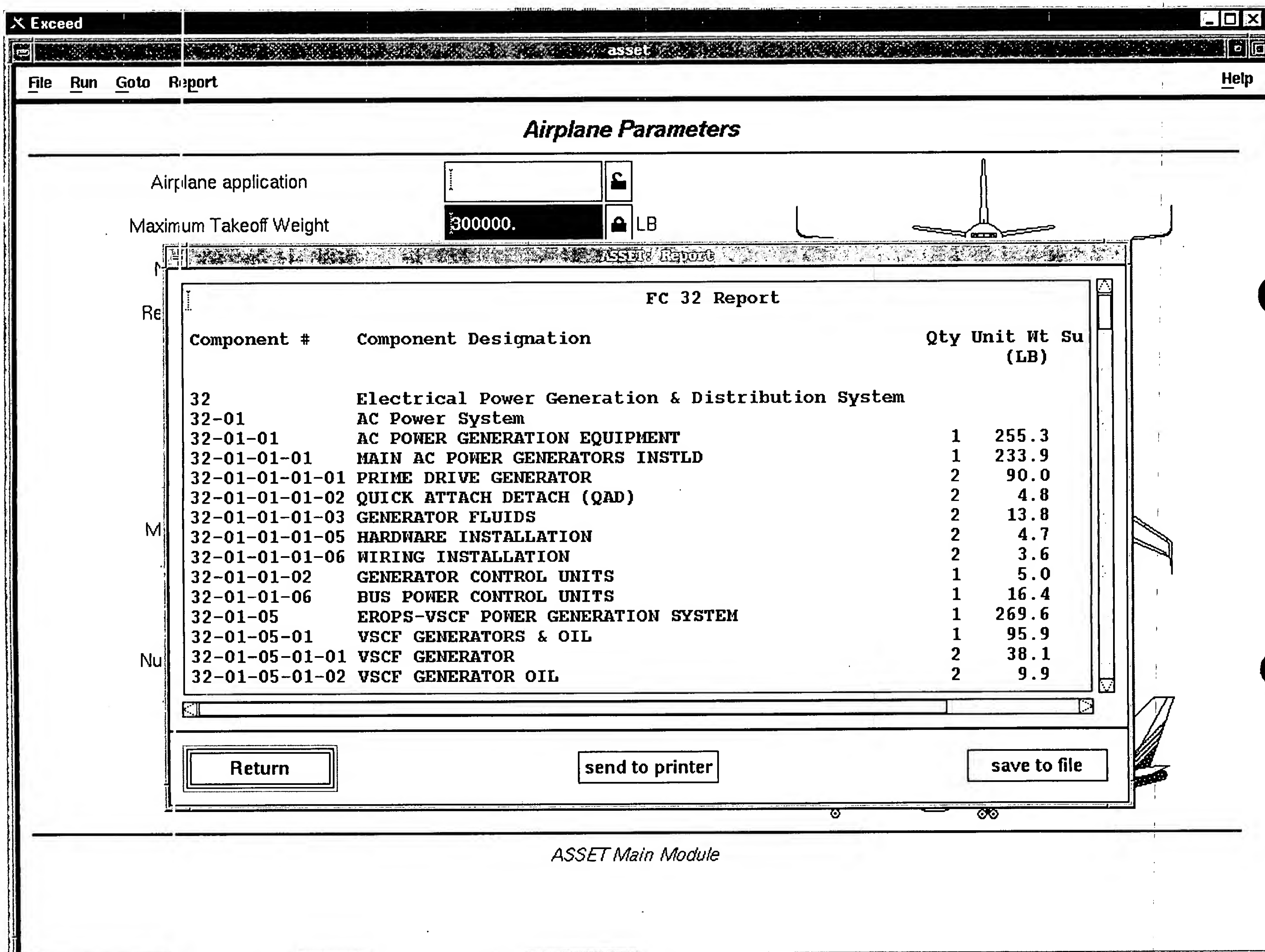

Exceed
asset
File
Run
Goto
Report
Help
FC32
ALL VARIABLES
CHARTS
Airplane Parameters
Airplane application
Maximum Takeoff Weight
300000.
LB
Number of engines
2
Refused takeoff speed
200.
KTS
Stage Noise
3
db delta
0.
DB
AP acoustic level
100.
DB
Max GW / Eng
150000.
LB
Max total thrust / Eng
54450.
LB
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
NM
ASSET Main Module

FIGURE 72



Exceed
asset
File Run Goto Report Help
Airplane Parameters
Airplane application
Maximum Takeoff Weight
300000.
LB
ASSET: Report
FC 32 Report
Component # Component Designation Qty Unit Wt Su (LB)
32 Electrical Power Generation & Distribution System
32-01 AC Power System
32-01-01 AC POWER GENERATION EQUIPMENT 1 255.3
32-01-01-01 MAIN AC POWER GENERATORS INSTLD 1 233.9
32-01-01-01-01 PRIME DRIVE GENERATOR 2 90.0
32-01-01-01-02 QUICK ATTACH DETACH (QAD) 2 4.8
32-01-01-01-03 GENERATOR FLUIDS 2 13.8
32-01-01-01-05 HARDWARE INSTALLATION 2 4.7
32-01-01-01-06 WIRING INSTALLATION 2 3.6
32-01-01-02 GENERATOR CONTROL UNITS 1 5.0
32-01-01-06 BUS POWER CONTROL UNITS 1 16.4
32-01-05 EROPS-VSCF POWER GENERATION SYSTEM 1 269.6
32-01-05-01 VSCF GENERATORS & OIL 1 95.9
32-01-05-01-01 VSCF GENERATOR 2 38.1
32-01-05-01-02 VSCF GENERATOR OIL 2 9.9
Return
send to printer
save to file
ASSET Main Module

FIGURE 73

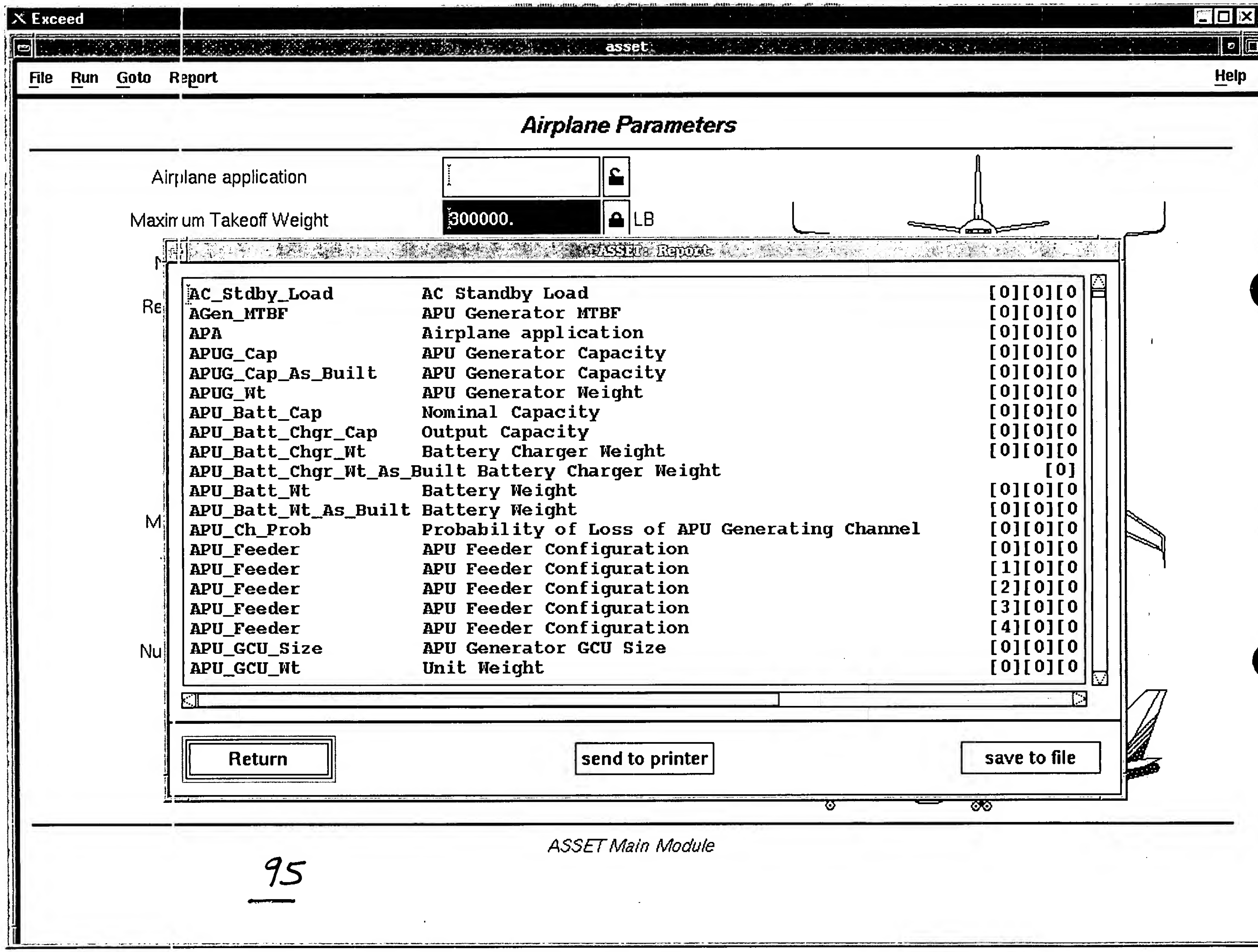

Exceed
asset
File Run Goto Report Help
Airplane Parameters
Airplane application
Maximum Takeoff Weight
300000.
LB
ASSET Report
AC_Stdby_Load AC Standby Load [0][0][0
AGen_MTBF APU Generator MTBF [0][0][0
APA Airplane application [0][0][0
APUG_Cap APU Generator Capacity [0][0][0
APUG_Cap_As_Built APU Generator Capacity [0][0][0
APUG_Wt APU Generator Weight [0][0][0
APU_Batt_Cap Nominal Capacity [0][0][0
APU_Batt_Chgr_Cap Output Capacity [0][0][0
APU_Batt_Chgr_Wt Battery Charger Weight [0][0][0
APU_Batt_Chgr_Wt_As_Built Battery Charger Weight [0]
APU_Batt_Wt Battery Weight [0][0][0
APU_Batt_Wt_As_Built Battery Weight [0][0][0
APU_Ch_Prob Probability of Loss of APU Generating Channel [0][0][0
APU_Feeder APU Feeder Configuration [0][0][0
APU_Feeder APU Feeder Configuration [1][0][0
APU_Feeder APU Feeder Configuration [2][0][0
APU_Feeder APU Feeder Configuration [3][0][0
APU_Feeder APU Feeder Configuration [4][0][0
APU_GCU_Size APU Generator GCU Size [0][0][0
APU_GCU_Wt Unit Weight [0][0][0
Return
send to printer
save to file
ASSET Main Module
95

FIGURE 94

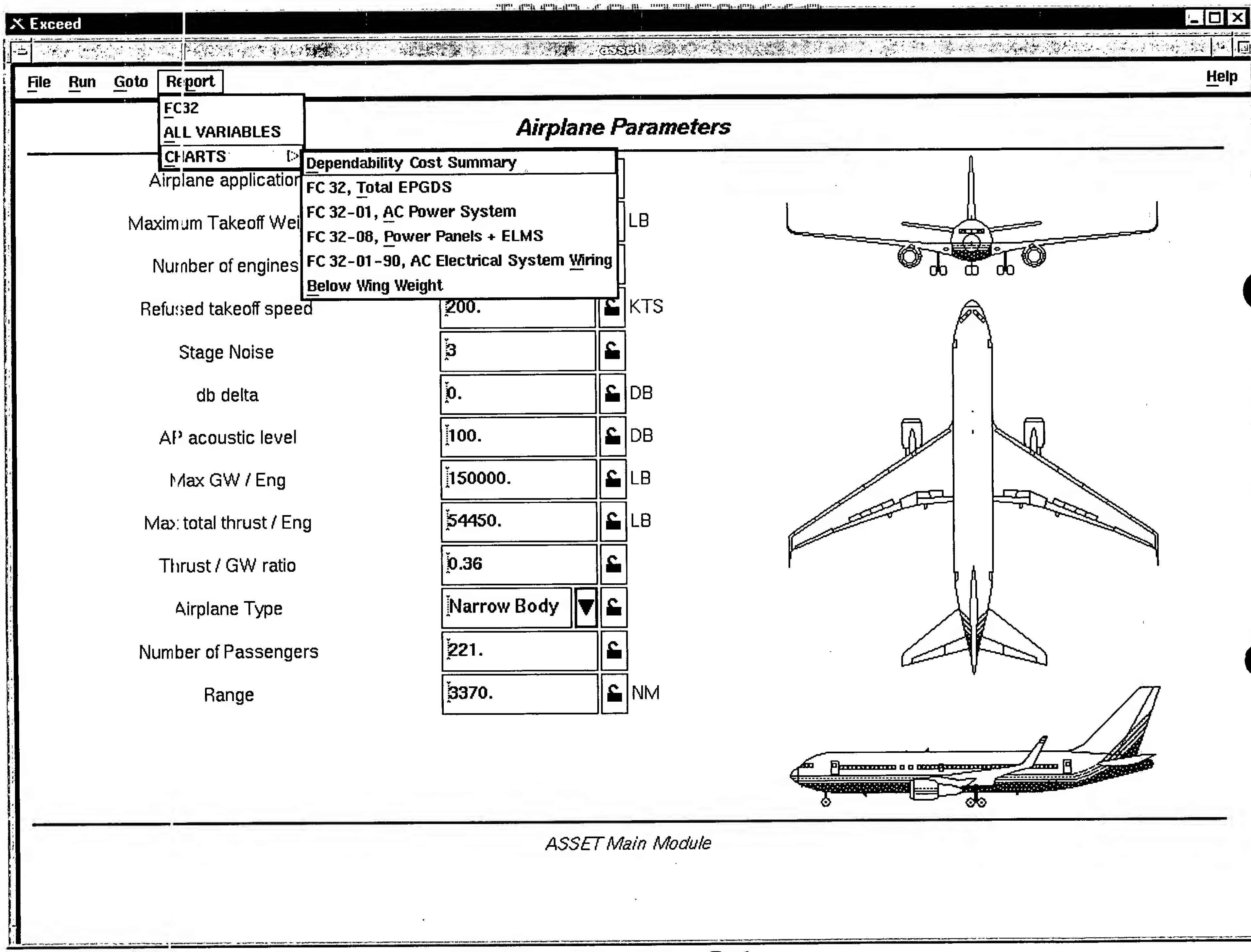

Exceed
asset
File
Run
Goto
Report
Help
FC32
ALL VARIABLES
CHARTS
Dependability Cost Summary
FC 32, Total EPGDS
FC 32-01, AC Power System
FC 32-08, Power Panels + ELMS
FC 32-01-90, AC Electrical System Wiring
Below Wing Weight
Airplane Parameters
Airplane applicatior
Maximum Takeoff Wei
LB
Number of engines
Refused takeoff speed
200.
KTS
Stage Noise
3
db delta
0.
DB
AP acoustic level
100.
DB
Max GW / Eng
150000.
LB
Max total thrust / Eng
54450.
LB
Thrust / GW ratio
0.36
Airplane Type
Narrow Body
Number of Passengers
221.
Range
3370.
NM
ASSET Main Module

FIGURE 75

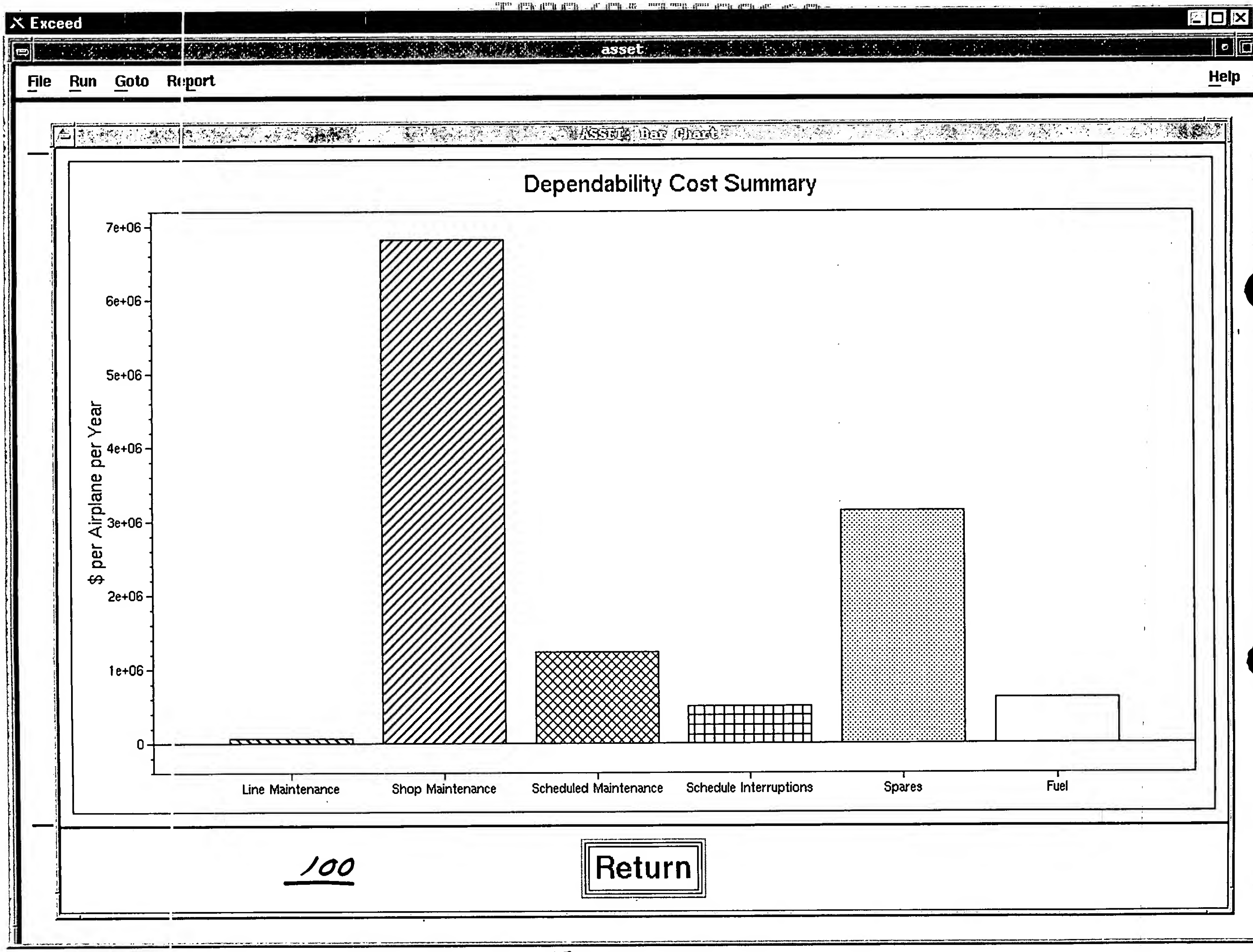

Exceed
asset
File
Run
Goto
Report
Help
ASSET: Bar Chart
Dependability Cost Summary
$ per Airplane per Year
7e+06
6e+06
5e+06
4e+06
3e+06
2e+06
1e+06
0
Line Maintenance
Shop Maintenance
Scheduled Maintenance
Schedule Interruptions
Spares
Fuel
100
Return

FIGURE 76

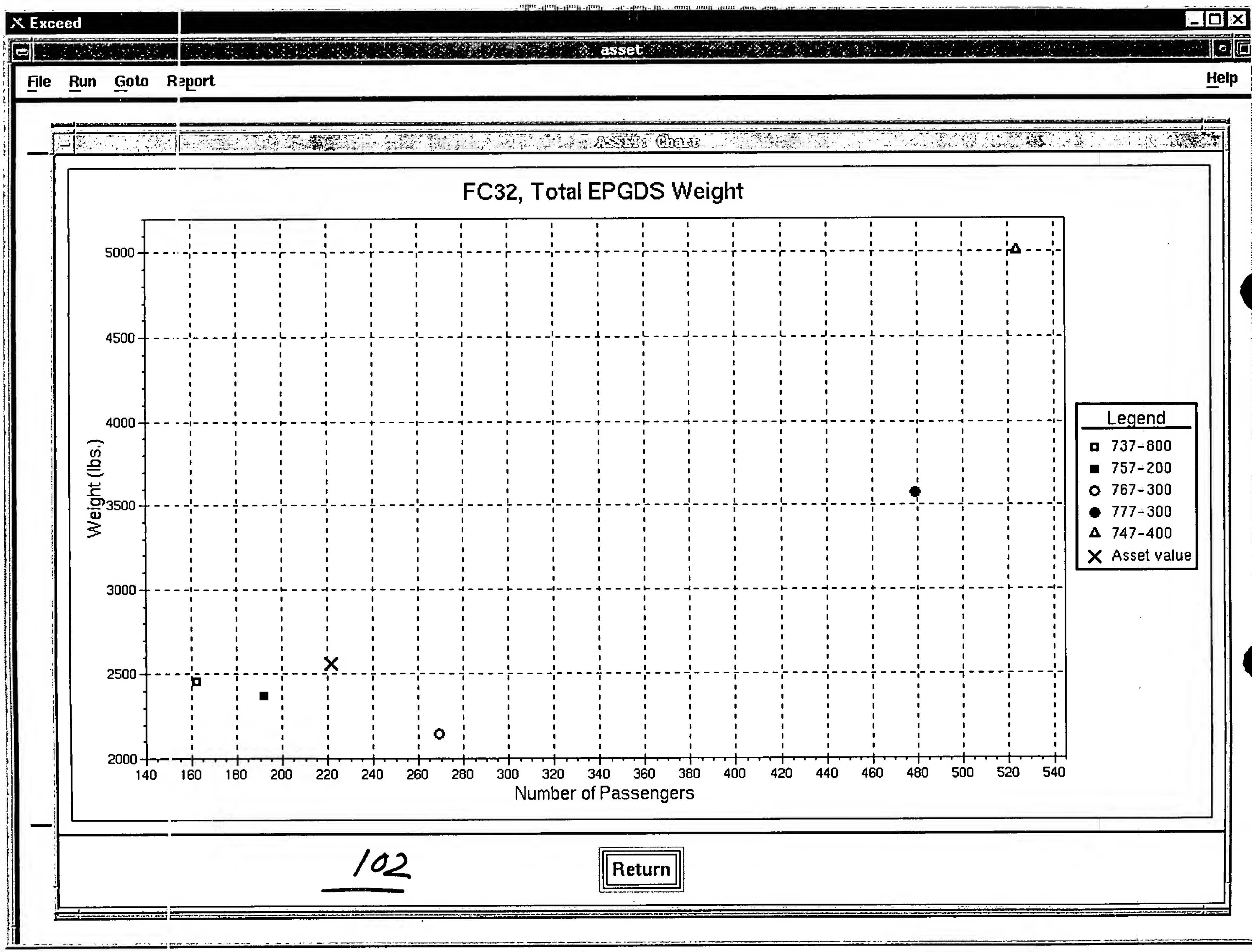
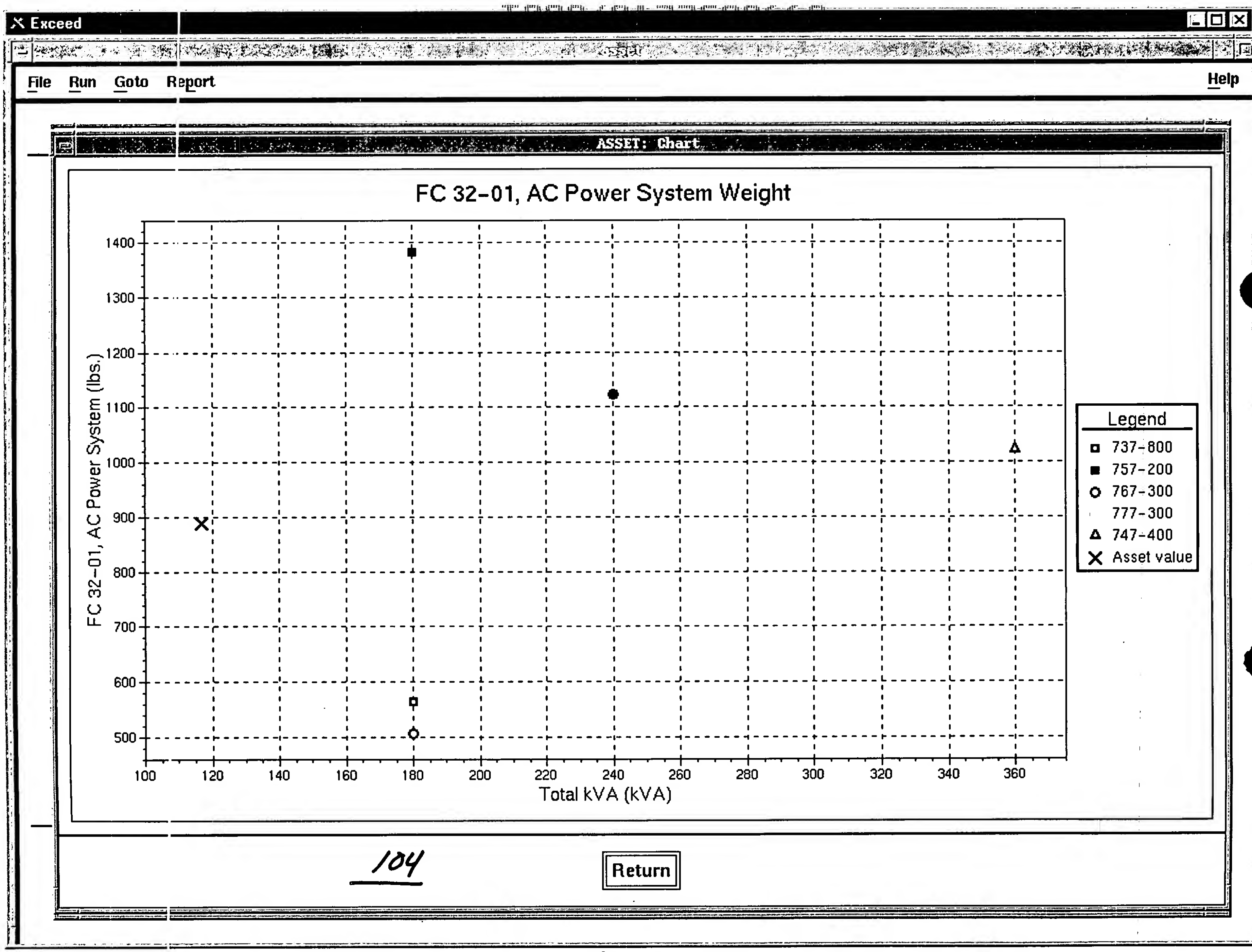

Exceed
asset
File
Run
Goto
Report
Help
Asset Chart
FC32, Total EPGDS Weight
Weight (lbs.)
5000
4500
4000
3500
3000
2500
2000
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
520
540
Number of Passengers
Legend
737-800
757-200
767-300
777-300
747-400
Asset value
Return
102

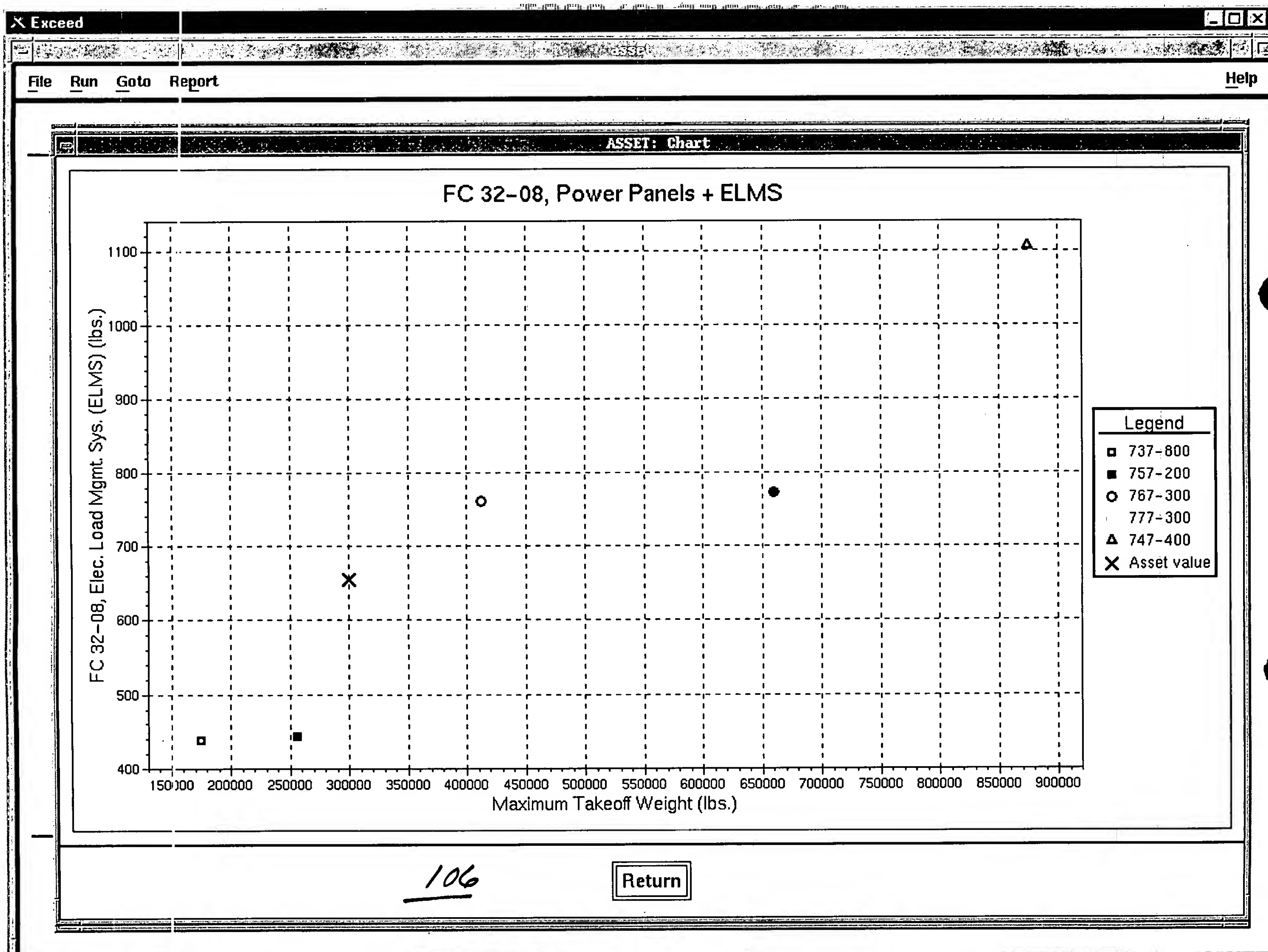
FIGURE 77



Exceed
File Run Goto Report
Help
ASSET: Chart
FC 32-01, AC Power System Weight
FC 32-01, AC Power System (lbs.)
1400
1300
1200
1100
1000
900
800
700
600
500
100
120
140
160
180
200
220
240
260
280
300
320
340
360
Total kVA (kVA)
Legend
737-800
757-200
767-300
777-300
747-400
Asset value
104
Return

FIGURE 78

77



Exceed
File
Run
Goto
Report
Help
ASSET: Chart
FC 32-08, Power Panels + ELMS
FC 32-08, Elec. Load Mgmt. Sys. (ELMS) (lbs.)
1100
1000
900
800
700
600
500
400
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
850000
900000
Maximum Takeoff Weight (lbs.)
Legend
737-800
757-200
767-300
777-300
747-400
Asset value
106
Return

FIGURE 79

75

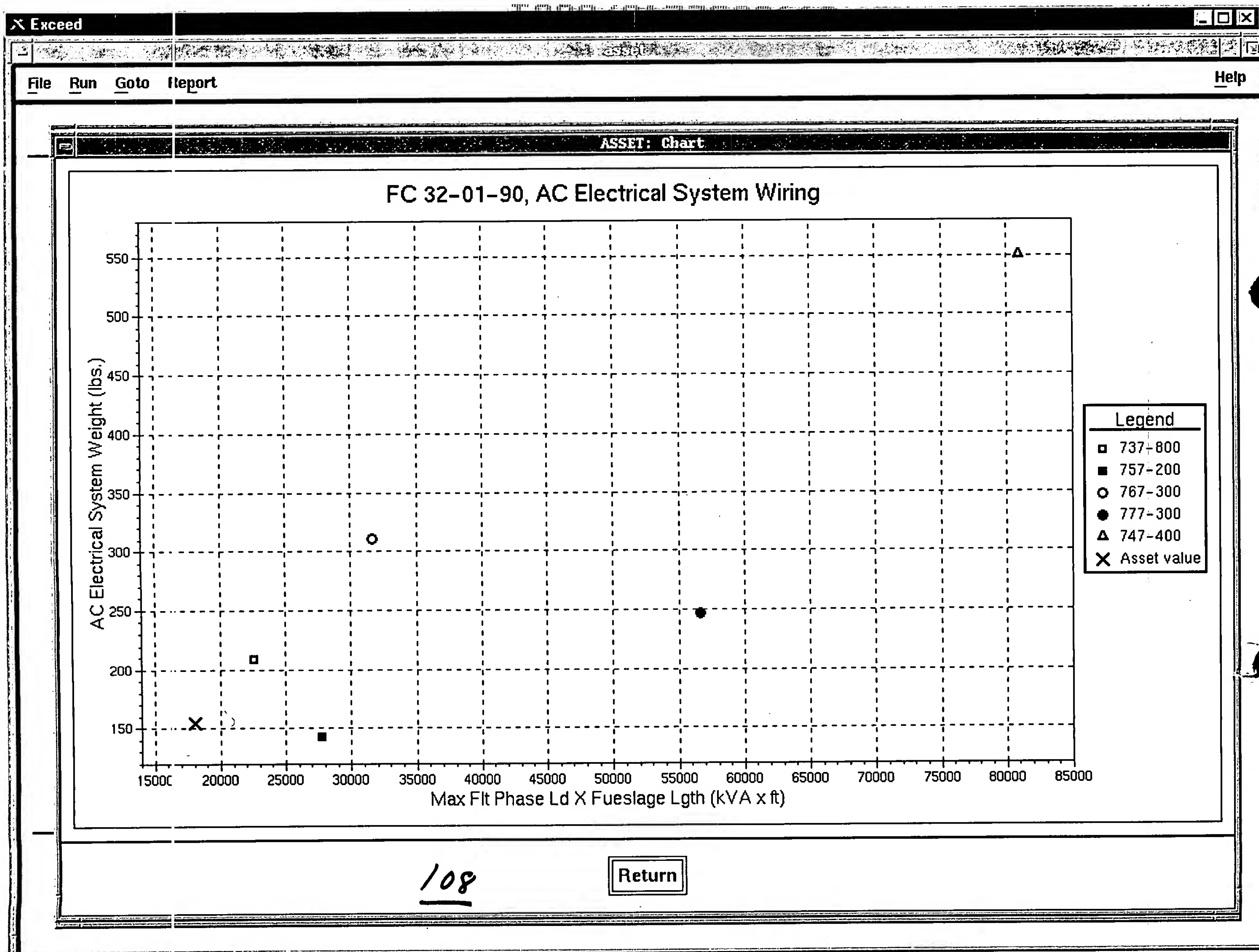

Exceed
File Run Goto Report
Help
ASSET: Chart
FC 32-01-90, AC Electrical System Wiring
AC Electrical System Weight (lbs.)
550
500
450
400
350
300
250
200
150
15000
20000
25000
30000
35000
40000
45000
50000
55000
60000
65000
70000
75000
80000
85000
Max Flt Phase Ld X Fueslage Lgth (kVA x ft)
Legend
737-800
757-200
767-300
777-300
747-400
Asset value
108
Return

FIGURE 80

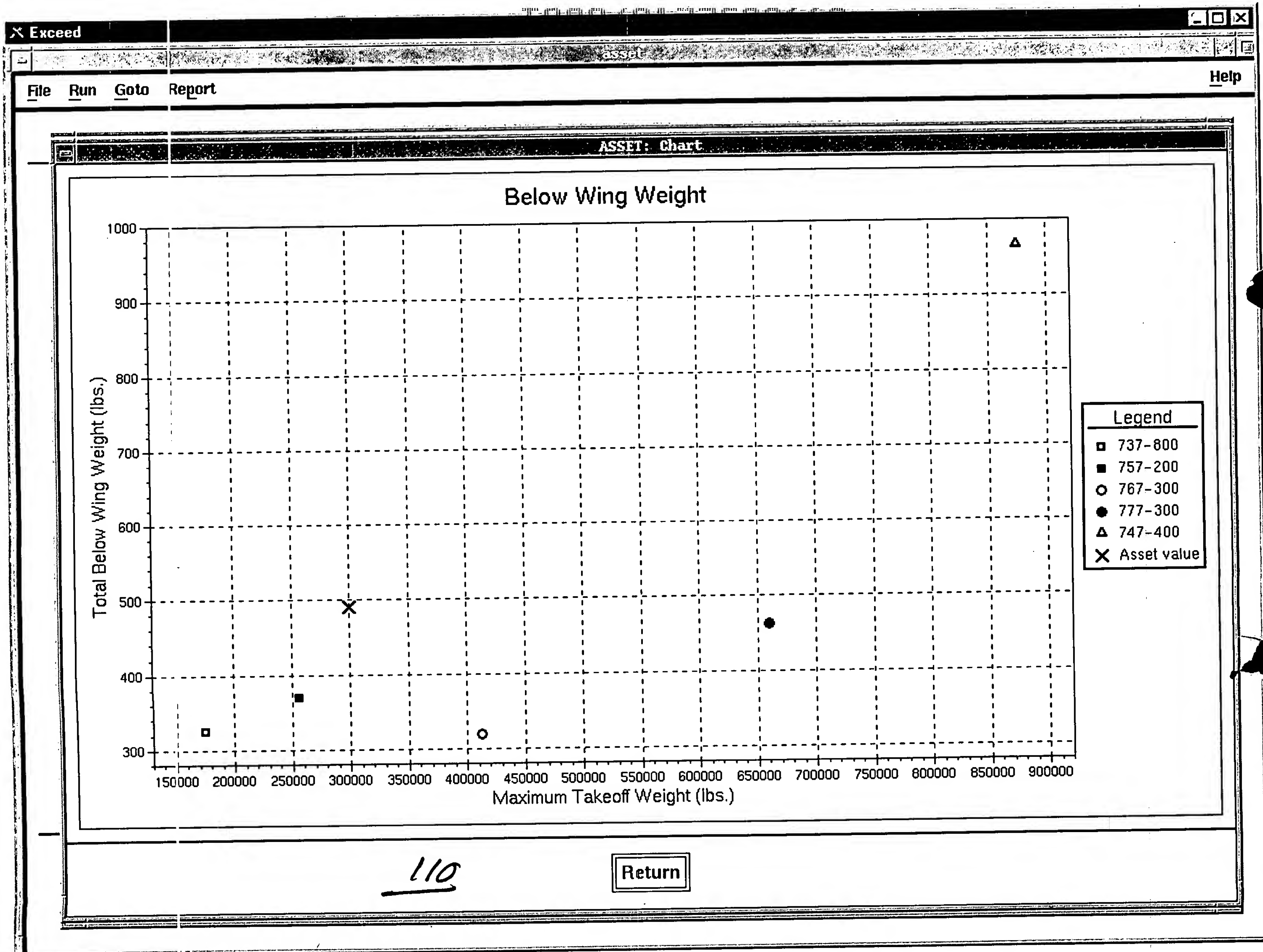

Exceed
asset
File
Run
Goto
Report
Help
ASSET: Chart
Below Wing Weight
Total Below Wing Weight (lbs.)
1000
900
800
700
600
500
400
300
150000
200000
250000
300000
350000
400000
450000
500000
550000
600000
650000
700000
750000
800000
850000
900000
Maximum Takeoff Weight (lbs.)
Legend
737-800
757-200
767-300
777-300
747-400
Asset value
110
Return

FIGURE 8J